

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF
 Edition : 01.03.93
 Replaces : 03.92
 Test oil : ISO-4113
 Combination no. : 0 402 646 972
 Injection pump
 Pump designation : PE6P120A32ORS7218
 EP type number : 0 412 626 839
 Governor
 Governor design. : RQV275...1000PA939-2
 Governor no. : 0 421 813 986

Customer-spec. information
 Customer : DAF

Engine : WS 268 L

1st version kW : 268.0
 Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 025
 Inlet press., bar : 1.50
 Overflow
 quantity min. 1/h: 95...115
 Test nozzle holder
 assembly : 1 688 901 105
 Opening
 pressure, bar : 207...210
 Orifice plate
 diameter mm : 0,8
 Test Lines : 1 680 750 089
 Outside diameter
 x Wall thickness
 x Length mm : 8.00x2.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27
 Prestroke mm : 5.30...5.40
 : (5.25...5.45)
 Rack travel in mm : 14.00...15.00
 Firing order : 1- 5- 3- 6- 2- 4
 Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)
 Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 4.90...5.10
 & maximum rack tra: 14.5...15.5
 Difference ° CS : 2.25...3.75

BASIC SETTING

1st speed rpm : 850
 Rack travel in mm : 14.80...14.90
 Del.quantity cm³/ : 23.0...23.2
 100 s: (22.7...23.5)
 Spread cm³ : 0.5
 100 s: (0.9)
 2nd speed rpm : 275.0
 Rack travel in mm : 6.1...6.3
 Del.quantity cm³/ : 1.4...2.0
 100 s: (1.1...2.3)
 Spread cm³ : 0.8
 100 s: (1.2)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1045
 travel mm : 7.70...8.20
 2nd speed rpm : 275
 travel mm : 1.10...1.60
 3rd speed rpm : 380
 travel mm : 2.40...2.90
 4th speed rpm : 675
 travel mm : 4.20...4.70
 5th speed rpm : 1310
 travel mm : 11.00...12.00

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1
Speed rpm : 1125
Rack travel in mm : 13.60...16.20

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 850
Aneroid pressure h: 1000
Del.quantity : 230.0...232.0
1000 : (227.0...235.0)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version

Control lever
position degrees: 116...124

Testing:

1st rack travel in: 13.80
Speed rpm : 1040...1050
2nd rack travel in: 4.00
Speed rpm : 1150...1180
4th rack travel in: 1250
Speed rpm : 0.00...1.40

LOW IDLE 1

Control lever
position degrees: 78...86

Testing:

Speed rpm : 175
Minimum rack travel: 7.50
Speed rpm : 275
Rack travel in mm : 4.90...5.10

CONSTANT REGULATION

Speed rpm : 300...350

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 1000
Rack travel mm : 14.80...14.90

Measurement

Speed 1/min : 600

1st pressure hPa : -
Rack travel in m: 12.20...12.40
2nd pressure hPa : 490
Rack travel in m: 14.20...14.30
3rd pressure hPa : 280
Rack travel in m: 12.80...13.00

A02

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -
Speed rpm : 600
Del.quantity cm³/ : 158.0...160.0
1000 s: (155.0...163.0)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 13.80
Speed rpm : 1040...1050

LOW IDLE

Speed rpm : 275
Rack travel in mm : 4.90...5.10

Remarks:

Setting and blocking of pointer of
start-of-delivery sensor on cyl. 1
start of delivery

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF
 Edition : 26.02.93
 Replaces : 03.92
 Test oil : ISO-4113

Combination no. : 0 402 646 973

Injection pump
 Pump designation : PE6P120A32ORS7218Z
 EP type number : 0 412 626 847
 Governor
 Governor design. : RQ275/1000PA936-2
 Governor no. : 0 421 801 633

Customer spec. information
 Customer : DAF

Engine : WS 242 L

1st version kW : 268.0
 Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow quantity min. 1/h: 100...120

Test nozzle holder assembly : 1 688 901 105

Opening pressure, bar : 207...210

Orifice plate diameter mm : 0,8

Test lines : 1 680 750 089

Outside diameter x Wall thickness x Length mm : 8.00X2.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.30...5.40
 : (5.25...5.45)

Rack travel in mm : 14.00...15.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 4.90...5.10
 & maximum rack tra: 13.5...14.5
 Difference ° CS : 2.20...3.75

BASIC SETTING

1st speed rpm : 850

Rack travel in mm : 13.80...13.90

Del. quantity cm³/ : 20.5...20.7

100 s: (20.2...21.0)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 275.0
 Rack travel in mm : 6.0...6.2
 Del. quantity cm³/ : 1.4...2.0
 100 s: (1.1...2.3)

Spread cm³ : 0.8
 100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1

Speed rpm : 550

Rack travel in mm : 15.60...16.40

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 850
 Aneroid pressure h: 1000
 Del. quantity : 205.0...207.0
 1000 : (202.0...210.0)

Spread cm³ : 5.00
 1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 550
Rack travel in mm : 16.0

Testing:

1st rack travel in: 12.80
Speed rpm : 1035...1050
2nd rack travel in: 4.00
Speed rpm : 1120...1150
4th rack travel in: 1250
Speed rpm : 0.00...1.40

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 275
Rack travel in mm : 5.0

Testing:

Speed rpm : 175
Minimum rack travel: 6.50
Speed rpm : 275
Rack travel in mm : 4.90...5.10
Rack travel in mm : 2.00
Speed rpm : 330...370

TORQUE CONTROL

Dimension a mm : -
Torque control curve - 1st version
1st speed rpm : 850
Rack travel in m: 14.80...14.90
2nd speed rpm : 1000
Rack travel in m: 14.70...14.90

Aneroid/Altitude
Compensator Test

1st version

Setting

Speed rpm : 600
Pressure hPa : 1000
Rack travel mm : 13.80...13.90

Measurement

Speed 1/min : 600

1st pressure hPa : -
Rack travel in m: 11.70...11.90
2nd pressure hPa : 420
Rack travel in m: 13.30...13.40
3rd pressure hPa : 260
Rack travel in m: 12.20...12.40

FUEL DELIVERY CHARACTERISTICS

1st version

A04

Aneroid pressure h: -

Speed rpm : 600
Del. quantity cm³/ : 147.0...149.0
1000 s: (144.0...152.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.80
Speed rpm : 1035...1050

LOW IDLE

Speed rpm : 275
Rack travel in mm : 4.90...5.10

Remarks:

:

Setting and blocking of pointer of
start-of-delivery sensor on cyl. 1
start of delivery

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF
 Edition : 01.03.93
 Replaces : 03.92
 Test oil : ISO-4113

Combination no. : 0 402 646 974

Injection pump
 Pump designation : PE6P120A320RS7218
 EP type number : 0 412 626 839
 Governor
 Governor design. : RQ275/1000PA936-2
 Governor no. : 0 421 801 633

Customer-spec. information
 Customer : DAF

Engine : WS 268 L

1st version kW : 268.0
 Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 95...115

Test nozzle holder
 assembly : 1 688 901 105

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 089

Outside diameter
 x Wall thickness
 x Length mm : 8.00X2.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.30...5.40
 : (5.25...5.45)
 Rack travel in mm : 14.00...15.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 4.90...5.10
 & maximum rack tra: 14.5...15.5
 Difference ° CS : 2.25...3.75

BASIC SETTING

1st speed rpm : 850

Rack travel in mm : 14.80...14.90

Del.quantity cm³/ : 23.0...23.2

100 s: (22.7...23.5)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 275.0
 Rack travel in mm : 6.1...6.3
 Del.quantity cm³/ : 1.4...2.0
 100 s: (1.1...2.3)
 Spread cm³ : 0.8
 100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 550

Rack travel in mm : 15.60...16.40

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 850
 Aneroid pressure h: 1000
 Del.quantity : 230.0...232.0
 1000 : (227.0...235.0)
 Spread cm³ : 5.00
 1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 550
Rack travel in mm : 16.0

Testing:

1st rack travel in: 13.80
Speed rpm : 1035...1050
2nd rack travel in: 4.00
Speed rpm : 1140...1170
4th rack travel in: 1250
Speed rpm : 0.00...1.40

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 275
Rack travel in mm : 5.0

Testing:

Speed rpm : 175
Minimum rack travel: 6.50
Speed rpm : 275
Rack travel in mm : 4.90...5.10
Rack travel in mm : 2.00
Speed rpm : 330...370

TORQUE CONTROL

Dimension a mm : -
Torque control curve - 1st version
1st speed rpm : 850
Rack travel in m: 15.30...15.40
2nd speed rpm : 1000
Rack travel in m: 15.20...15.40

Aneroid/Altitude
Compensator Test

1st version

Setting

Speed rpm : 600
Pressure hPa : 1000
Rack travel mm : 14.80...14.90

Measurement

Speed 1/min : 600

1st pressure hPa : -
Rack travel in m: 12.20...12.40
2nd pressure hPa : 490
Rack travel in m: 14.20...14.30
3rd pressure hPa : 280
Rack travel in m: 12.80...13.00

FUEL DELIVERY CHARACTERISTICS

1st version

A06

Aneroid pressure h: -

Speed rpm : 600
Del. quantity cm³/ : 158.0...160.0
1000 s: (155.0...163.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 13.80
Speed rpm : 1035...1050

LOW IDLE

Speed rpm : 275
Rack travel in mm : 4.90...5.10

Remarks:

:
Setting and blocking of pointer of
start-of-delivery sensor on cyl. 1
start of delivery

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : SCA
 Edition : 15.06.93
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 402 646 995
 Injection pump
 Pump designation : PE6P120A720RS7188
 EP type number : 0 412 626 832
 Governor
 Governor design. : RQV200...950PA725-10
 Governor no. : 0 421 814 002

Customer-spec. information
 Customer : SCANIA

Engine : DSC 11 33

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve
 : 1 417 413 025
 Inlet press., bar : 2.50
 Test nozzle holder
 assembly : 1 688 901 104
 Opening
 pressure, bar : 250...253
 Orifice plate
 diameter mm : 0,7
 Test lines : 1 680 750 008
 Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27
 Prestroke mm : 4.40...4.50
 : (4.35...4.55)
 Rack travel in mm : 9.00...12.00

A07

Firing order : 1- 5- 3- 6- 2- 4
 Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)
 Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700
 Rack travel in mm : 13.40...13.50
 Del.quantity cm³/ : 23.8...24.0
 100 s : (23.5...24.3)
 Spread cm³ : 0.8
 100 s : (1.2)
 2nd speed rpm : 250.0
 Rack travel in mm : 4.6...5.0
 Del.quantity cm³/ : 1.3...1.9
 100 s : (1.0...2.2)
 Spread cm³ : 0.4
 100 s : (0.8)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 225
 travel mm : 1.20...1.60
 2nd speed rpm : 350
 travel mm : 2.40...3.00
 3rd speed rpm : 650
 travel mm : 4.50...5.10
 4th speed rpm : 1045
 travel mm : 8.40...8.60
 5th speed rpm : 1125
 travel mm : 9.30...9.70

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 1150
 Rack travel in mm : 7.00...12.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 700
 Aneroid pressure h: 1500
 Del.quantity : 238.0...240.0
 1000 : (235.0...243.0)

Spread cm3 : 8.00
1000 : (12.00)

RATED SPEED

1st version
Control lever
position degrees: 110...118

Testing:
1st rack travel in: 12.40
Speed rpm : 990...1000
2nd rack travel in: 4.00
Speed rpm : 1110...1140
4th rack travel in: 1250
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 60...68

Testing:
Speed rpm : 125
Minimum rack travel: 6.20
Speed rpm : 250
Rack travel in mm : 4.60...4.80
Rack travel in mm : 2.00
Speed rpm : 370...430

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 1500
Rack travel mm : 13.40...13.50

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.20...10.60
2nd pressure hPa : 440
Rack travel in m: 12.00...12.10
3rd pressure hPa : 270
Rack travel in m: 10.90...11.10

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1500
Speed rpm : 950
Del.quantity cm3/ : 218.0...226.0
1000 s: (216.0...228.0)
Aneroid pressure h: -
Speed rpm : 500

Del.quantity cm3/ : 151.0...155.0
1000 s: (149.0...157.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 12.40
Speed rpm : 990...1000

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 145.0...185.0
1000 s: (141.0...189.0)
Rack travel in mm : 10.20...10.60

LOW IDLE

Speed rpm : 250
Rack travel in mm : 4.60...4.80

Remarks:
Delivery-valve spring pre-tension
3.2...3.4 mm.
Permissible alteration of 3.0...3.5 mm

Because of flattening, set the spring
preload on new delivery-valve holders
to 2.9...3.1 mm.

Start-of-delivery setting with ROBO
diaphragm.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : SCA 14,0 h1
 Edition : 21.06.93
 Replaces : 07.02.89
 Test oil : ISO-4113

Combination no. : 0 402 648 836

Injection pump

Pump designation : PE8P120A920/4LS7125T
 EP type number : 0 412 628 824
 Governor
 Governor design. : RQV200...950PA736-4
 Governor no. : 0 421 813 646

Customer-spec. information

Customer : SAAB-SCANIA

Engine : DSC14 03 L09,L10

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.00...5.10
 : (4.95...5.15)
 Rack travel in mm : 9.00...12.00

A09

Firing order : 1- 2- 7- 3- 4- 5-
 6- 8

Phasing : 0-45-90-135-180-225-
 270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 13.80...13.90

Del.quantity cm³/ : 22.1...22.3

100 s: (21.8...22.6)

Spread cm³ : 0.6

100 s: (0.9)

2nd speed rpm : 225.0

Rack travel in mm : 4.9...5.3

Del.quantity cm³/ : 1.6...2.0

100 s: (-)

Spread cm³ : 0.3

100 s: (0.6)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 225

travel mm : 1.20...1.60

2nd speed rpm : 350

travel mm : 2.30...2.90

3rd speed rpm : 650

travel mm : 4.40...5.00

4th speed rpm : 995

travel mm : 7.70...7.90

5th speed rpm : 1125

travel mm : 9.30...9.70

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1040

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Aneroid pressure h: 900

Del.quantity : 221.0...223.0

1000 : (218.0...226.0)

Spread cm³ : 6.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 56...64

Testing:
1st rack travel in: 12.80
Speed rpm : 990...1000
2nd rack travel in: 4.00
Speed rpm : 1110...1140
4th rack travel in: 1250
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 7...15

Testing:
Speed rpm : 100
Minimum rack travel: 6.50
Speed rpm : 225
Rack travel in mm : 4.90...5.10
Rack travel in mm : 2.00
Speed rpm : 360...420

Aneroid/Altitude Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 13.80...13.90

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.60...11.00
2nd pressure hPa : 445
Rack travel in m: 12.90...13.00
3rd pressure hPa : 325
Rack travel in m: 11.40...11.60

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 900
Speed rpm : 950
Del. quantity cm³/ : 211.0...219.0
1000 s: (209.0...221.0)
Aneroid pressure h: -
Speed rpm : 500

Del. quantity cm³/ : 138.0...142.0
1000 s: (136.0...144.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 12.80
Speed rpm : 990...1000

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 240.0...290.0
1000 s: (-)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 225
Rack travel in mm : 4.90...5.10

Remarks:

Delivery-valve spring pre-tension
3.2...3.4 mm.
Permissible alteration of 3.0...3.5 mm

Because of flattening, set the spring
preload on new delivery-valve holders
to 2.9...3.1 mm.

ADDITIONAL INFORMATION

Start-of-delivery setting with ROBO
diaphragm.

For comb. with letter index see
VDT-I-400/116.

For sealing see VDT-I-400/117.

Start of delivery - engine: 16° before
TDC

Engine firing sequence: 1-5-4-2-6-3-7-8

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 r
 Edition : 15.06.93
 Replaces : 12.92
 Test oil : ISO-4113

Combination no. : 0 402 736 807

Injection pump
 Pump designation : PES6P110A12ORS7214
 EP type number : 0 412 716 805
 Governor
 Governor design. : RQV350...1100PA964
 -1K

Governer no. : 0 421 815 253

Customer-spec. information
 Customer : C.D.C.

Engine : 6CTA-A

1st version kw : 201.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 115...125

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

Prestroke mm : 4.35...4.45
 : (4.30...4.50)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 15.80...15.90

Del.quantity cm³/ : 20.9...21.1

100 s: (20.6...21.4)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 350.0

Rack travel in mm : 5.7...5.9

Del.quantity cm³/ : 2.7...3.3

100 s: (2.5...3.5)

Spread cm³ : 0.8

100 s: (1.2)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 350

travel mm : 1.80...2.00

2nd speed rpm : 450

travel mm : 3.10...3.50

3rd speed rpm : 600

travel mm : 5.10...5.50

4th speed rpm : 1000

travel mm : 8.10...8.30

5th speed rpm : 1200

travel mm : 9.60...10.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050

Aneroid pressure h: 1500

Del.quantity : 209.0...211.0

1000 : (206.0...214.0)

Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 64...72

Testing:
1st rack travel in: 14.50
Speed rpm : 1145...1155
2nd rack travel in: 4.00
Speed rpm : 1300...1330
4th rack travel in: 1400
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 11...19

Testing:
Speed rpm : 275
Minimum rack travel: 7.20
Speed rpm : 350
Rack travel in mm : 5.70...5.90

CONSTANT REGULATION
Speed rpm : 325...520

TORQUE CONTROL
Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 1050
Rack travel in m: 15.80...15.90
2nd speed rpm : 650
Rack travel in m: 13.20...13.60
3rd speed rpm : 1100
Rack travel in m: 15.50...15.70

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 1050
Pressure hPa : 1500
Rack travel mm : 15.80...15.90

Measurement
Speed 1/min : 1050

1st pressure hPa : -
Rack travel in m: 8.10...8.50
2nd pressure hPa : 335
Rack travel in m: 10.10...10.20
3rd pressure hPa : 845
Rack travel in m: 13.60...14.00

START CUT-OUT

Speed 1/min : 290 (300)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1500
Speed rpm : 650
Del.quantity cm³/ : 190.5...196.5
1000 s: (187.5...199.5)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 91.0...95.0
1000 s: (89.0...97.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 14.50
Speed rpm : 1145...1155

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 135.0...175.0
1000 s: (130.0...180.0)
Rack travel in mm : 11.00...12.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.70...5.90
Del.quantity cm³/ : 27.0...33.0
1000 s: (25.0...35.0)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks: : C.D.C. # 3921771

Start-of-delivery mark = 5.5° after
start of delivery cyl. 1.

Bow dimension:
Sliding-sleeve position = 37.0 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 r 1
 Edition : 15.06.93
 Replaces : 05.92
 Test oil : ISO-4113

Combination no. : 0 402 736 814

Injection pump
 Pump designation : PES6P110A120RS7214
 EP type number : 0 412 716 805
 Governor
 Governor design. : RQV350...1200PA964
 -6K
 Governor no. : 0 421 815 258

Customer-spec. information
 Customer : C.D.C.

Engine : 6CTA-A

1st version kW : 187.0
 Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 047

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 115...125

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

Prestroke mm : 4.35...4.45
 : (4.30...4.50)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1200

Rack travel in mm : 14.50...14.60

Del. quantity cm³/ : 18.3...18.5

100 s: (18.0...18.8)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 350.0

Rack travel in mm : 5.4...5.6

Del. quantity cm³/ : 2.7...3.3

100 s: (2.5...3.5)

Spread cm³ : 0.8

100 s: (1.2)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 350
 travel mm : 1.80...2.00

2nd speed rpm : 450
 travel mm : 3.10...3.50

3rd speed rpm : 700
 travel mm : 5.90...6.30

4th speed rpm : 1200
 travel mm : 9.00...9.20

5th speed rpm : 1400
 travel mm : 10.70...11.10

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1200
 Aneroid pressure h: 1200
 Del. quantity : 183.0...185.0
 1000 : (180.0...188.0)

Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 62...70

Testing:
1st rack travel in: 13.50
Speed rpm : 1245...1255
2nd rack travel in: 4.00
Speed rpm : 1405...1435
4th rack travel in: 1500
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 11...19

Testing:
Speed rpm : 275
Minimum rack travel: 7.20
Speed rpm : 350
Rack travel in mm : 5.40...5.60

CONSTANT REGULATION

Speed rpm : 325...520

TORQUE CONTROL

Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 1200
Rack travel in m: 14.50...14.60
2nd speed rpm : 650
Rack travel in m: 11.40...11.80

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 1200
Pressure hPa : 1200
Rack travel mm : 14.50...14.60

Measurement

Speed 1/min : 1200

1st pressure hPa : -
Rack travel in m: 7.50...7.90
2nd pressure hPa : 320
Rack travel in m: 9.60...9.70
3rd pressure hPa : 860
Rack travel in m: 13.30...13.70

START CUT-OUT

Speed 1/min : 290 (300)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200
Speed rpm : 650
Del.quantity cm³/ : 165.5...171.5
1000 s: (162.5...174.5)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 86.5...90.5
1000 s: (84.5...92.5)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 13.50
Speed rpm : 1245...1255

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 135.0...175.0
1000 s: (130.0...180.0)
Rack travel in mm : 10.70...11.70

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.40...5.60
Del.quantity cm³/ : 27.0...33.0
1000 s: (25.0...35.0)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks:

: C.D.C. # 3921775

Start-of-delivery mark = 5.5° after
start of delivery cyl. 1.

Bow dimension:

Sliding-sleeve position = 37.0 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM
 Edition : 15.06.93
 Replaces : 03.93
 Test oil : ISO-4113

Combination no. : 0 402 736 834

Injection pump
 Pump designation : PES6P120A120RS7265
 EP type number : 0 412 726 882
 Governor
 Governor design. : RQV350...1100PA964
 -12K
 Governor no. : 0 421 815 323

Customer-spec. information
 Customer : C.D.C.

Engine : 6CTA-A

1st version kW : 186.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 2 417 413 086

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 103

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,7

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X3.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

Prestroke mm : 3.95...4.05
 : (3.90...4.10)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 13.90...14.00

Del.quantity cm³/ : 21.1...21.3

100 s: (20.8...21.6)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 350.0

Rack travel in mm : 6.4...6.8

Del.quantity cm³/ : 2.0...2.6

100 s: (1.8...2.8)

Spread cm³ : 0.8

100 s: (1.2)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 350
 travel mm : 2.10...2.40

2nd speed rpm : 450
 travel mm : 3.20...3.60

3rd speed rpm : 900
 travel mm : 5.60...6.00

4th speed rpm : 1200
 travel mm : 8.10...8.30

5th speed rpm : 1400
 travel mm : 10.20...10.60

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1100
 Aneroid pressure h: 1200
 Del.quantity : 211.5...213.5
 1000 : (208.5...216.5)

Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 58...66

Testing:
1st rack travel in: 12.40
Speed rpm : 1245...1275
2nd rack travel in: 4.00
Speed rpm : 1390...1400
4th rack travel in: 1500
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 13...21

Testing:
Speed rpm : 275
Minimum rack travel: 8.30
Speed rpm : 350
Rack travel in mm : 6.40...6.80

CONSTANT REGULATION
Speed rpm : 325...520

TORQUE CONTROL
Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 13.90...14.00
2nd speed rpm : 650
Rack travel in m: 12.00...12.40
3rd speed rpm : 1200
Rack travel in m: 13.40...13.60
4th speed rpm : 750
Rack travel in m: 12.40...12.80

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 1100
Pressure hPa : 1200
Rack travel mm : 13.90...14.00

Measurement
Speed 1/min : 1100

1st pressure hPa : -
Rack travel in m: 8.60...9.00
2nd pressure hPa : 310
Rack travel in m: 10.10...10.20
3rd pressure hPa : 650

Rack travel in m: 12.40...12.80

START CUT-OUT

Speed 1/min : 290 (300)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1200
Speed rpm : 650
Del.quantity cm³/ : 166.0...172.0
1000 s: (163.0...175.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: 1200
Speed rpm : 750
Del.quantity cm³/ : 175.0...181.0
1000 s: (172.0...184.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 1000
Del.quantity cm³/ : 82.5...86.5
1000 s: (80.5...88.5)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 12.40
Speed rpm : 1245...1275

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 180.0...220.0
1000 s: (175.0...225.0)
Rack travel in mm : 12.00...13.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 6.40...6.80
Del.quantity cm³/ : 20.0...26.0
1000 s: (18.0...28.0)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks:

: C.D.C. # 3922471

Start-of-delivery mark = 5.5° after
start of delivery cyl. 1.

Bow dimension:

Sliding-sleeve position = 37.0 mm
Delivery-valve spring pre-tension =
6.30...6.40 mm.
Permissible alteration from 6.00...6.70
mm



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM
 Edition : 21.04.93
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 402 736 835

Injection pump
 Pump designation : PES6P120A120RS7265
 EP type number : 0 412 726 882
 Governor
 Governor design. : RQV350...900PA964
 -13K
 Governor no. : 0 421 815 324

Customer-spec. information
 Customer : C.D.C.

Engine : 6CTA-A

1st version kW : 205.0
 Rated speed : 1800

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 2 417 413 086

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 90...110

Test nozzle holder
 assembly : 1 688 901 103

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,7

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X3.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

Prestroke mm : 3.95...4.05
 : (3.90...4.10)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 900

 Rack travel in mm : 14.70...14.80

 Del.quantity cm³/ : 24.3...24.5
 100 s: (24.0...24.8)

Spread cm³ : 0.5

 100 s: (0.9)

2nd speed rpm : 350.0
 Rack travel in mm : 6.4...6.6
 Del.quantity cm³/ : 1.8...2.4
 100 s: (1.6...2.6)
 Spread cm³ : 0.8
 100 s: (1.2)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 350
 travel mm : 1.60...1.80
 2nd speed rpm : 450
 travel mm : 3.00...3.40
 3rd speed rpm : 600
 travel mm : 5.20...5.60
 4th speed rpm : 1000
 travel mm : 8.40...8.60
 5th speed rpm : 1150
 travel mm : 9.80...10.20

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 900
 Aneroid pressure h: 1200
 Del.quantity : 243.0...245.0
 1000 : (240.0...248.0)

Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 60...68

Testing:

1st rack travel in: 13.40
Speed rpm : 1145...1175
2nd rack travel in: 4.00
Speed rpm : 1210...1220
4th rack travel in: 1350
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 12...20

Testing:

Speed rpm : 275
Minimum rack trave: 8.10
Speed rpm : 350
Rack travel in mm : 6.40...6.60

CONSTANT REGULATION

Speed rpm : 325...520

TORQUE CONTROL

Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 900
Rack travel in m: 14.70...14.80
2nd speed rpm : 650
Rack travel in m: 13.80...14.20
3rd speed rpm : 1000
Rack travel in m: 14.40...14.60
4th speed rpm : 750
Rack travel in m: 14.10...14.50

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 1000
Pressure hPa : 1200
Rack travel mm : 14.70...14.80

Measurement

Speed 1/min : 1000

1st pressure hPa : -
Rack travel in m: 10.20...10.60
2nd pressure hPa : 310
Rack travel in m: 11.40...11.50
3rd pressure hPa : 650

A19

Rack travel in m: 13.20...13.60

START CUT-OUT

Speed 1/min : 290 (300)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200
Speed rpm : 650
Del.quantity cm³/ : 226.0...232.0
1000 s: (223.0...235.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: 1200
Speed rpm : 750
Del.quantity cm³/ : 230.5...236.5
1000 s: (227.5...239.5)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 1000
Del.quantity cm³/ : 90.5...94.5
1000 s: (88.5...96.5)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 13.40
Speed rpm : 1145...1175

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 180.0...220.0
1000 s: (175.0...225.0)
Rack travel in mm : 12.00...13.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 6.40...6.60
Del.quantity cm³/ : 18.0...24.0
1000 s: (16.0...26.0)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks:

: C.D.C. # 3922446

Start-of-delivery mark = 5.5° after
start of delivery cyl. 1.

Bow dimension:

Sliding-sleeve position = 37.0 mm



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM
 Edition : 15.06.93
 Replaces : 02.93
 Test oil : ISO-4113

Combination no. : 0 402 736 836

Injection pump
 Pump designation : PES6P120A12ORS7265
 EP type number : 0 412 726 882
 Governor
 Governor design. : RGV350...1000PA964
 -14K
 Governor no. : 0 421 815 325

Customer-spec. information
 Customer : C.D.C.

Engine : 6CTA-A

1st version kW : 205.0
 Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 2 417 413 086

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 90...110

Test nozzle holder
 assembly : 1 688 901 103

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,7

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X3.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

Prestroke mm : 3.95...4.05
 : (3.90...4.10)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 14.50...14.60

Del.quantity cm³/ : 23.6...23.8

100 s: (23.3...24.1)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 350.0

Rack travel in mm : 6.0...6.2

Del.quantity cm³/ : 0.9...1.5

100 s: (0.7...1.7)

Spread cm³ : 0.8

100 s: (1.2)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 350

travel mm : 1.80...2.00

2nd speed rpm : 450

travel mm : 3.10...3.50

3rd speed rpm : 600

travel mm : 5.10...5.50

4th speed rpm : 1000

travel mm : 8.10...8.30

5th speed rpm : 1200

travel mm : 9.60...10.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000

Aneroid pressure h: 1200

Del.quantity : 236.0...238.0

1000 : (233.0...241.0)

Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 62...70

Testing:

1st rack travel in: 12.90
Speed rpm : 1145...1175
2nd rack travel in: 4.00
Speed rpm : 1295...1305
4th rack travel in: 14.00
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 12...20
Rack travel in mm : 6.1

Testing:

Speed rpm : 275
Minimum rack travel: 8.10
Speed rpm : 350
Rack travel in mm : 6.00...6.20

CONSTANT REGULATION

Speed rpm : 325...520

TORQUE CONTROL

Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 1000
Rack travel in m: 14.50...14.60
2nd speed rpm : 650
Rack travel in m: 13.10...13.50
3rd speed rpm : 1100
Rack travel in m: 13.90...14.10
4th speed rpm : 750
Rack travel in m: 13.40...13.80

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 1000
Pressure hPa : 1200
Rack travel mm : 14.50...14.60

Measurement

Speed 1/min : 1000

1st pressure hPa : -
Rack travel in m: 8.80...9.20
2nd pressure hPa : 400
Rack travel in m: 10.30...10.40

A22

3rd pressure hPa : 880
Rack travel in m: 12.90...13.30

START CUT-OUT

Speed 1/min : 290 (300)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200
Speed rpm : 650
Del.quantity cm³/ : 203.5...209.5
1000 s: (200.5...212.5)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: 1200
Speed rpm : 750
Del.quantity cm³/ : 209.5...215.0
1000 s: (206.5...218.5)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 1000
Del.quantity cm³/ : 88.0...92.0
1000 s: (86.0...94.0)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 12.90
Speed rpm : 1145...1175

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 180.0...220.0
1000 s: (175.0...225.0)
Rack travel in mm : 12.00...13.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 6.00...6.20
Del.quantity cm³/ : 9.5...15.5
1000 s: (7.5...17.5)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks:

: C.D.C. # 3922427

Start-of-delivery mark = 5.5° after
start of delivery cyl. 1.

Bow dimension:
Sliding-sleeve position = 37.0 mm



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM
 Edition : 15.06.93
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 402 736 842
 Injection pump
 Pump designation : PES6P120A120RS7281
 EP type number : 0 412 726 890
 Governor
 Governor design. : RQV400...1250PA1060K
 Governor no. : 0 421 815 344

Customer-spec. information
 Customer : C.D.C.

Engine : 6BTA-A

1st version kW : 119.0
 Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 047

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 105...125

Test nozzle holder
 assembly : 1 688 901 103

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,7

Test Lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X3.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

Prestroke mm : 3.55...3.65
 : (3.50...3.70)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1250

Rack travel in mm : 13.40...13.50

Del. quantity cm³/ : 15.7...15.9

100 s: (15.4...16.2)

Spread cm³ : 0.8

100 s: (1.2)

2nd speed rpm : 400.0

Rack travel in mm : 6.0...6.4

Del. quantity cm³/ : 1.5...2.1

100 s: (1.3...2.3)

Spread cm³ : 0.4

100 s: (0.8)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 400

travel mm : 1.40...1.60

2nd speed rpm : 550

travel mm : 2.50...2.90

3rd speed rpm : 800

travel mm : 4.00...4.40

4th speed rpm : 1250

travel mm : 6.90...7.10

5th speed rpm : 1500

travel mm : 9.10...9.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1250

Aneroid pressure h: 1200

Del. quantity : 157.0...159.0

1000 : (154.0...162.0)

Spread cm³ : 8.00
1000 : (12.00)

RATED SPEED

1st version
Control lever
position degrees: 58...66

Testing:

1st rack travel in: 12.40
Speed rpm : 1320...1330
2nd rack travel in: 4.00
Speed rpm : 1465...1495
4th rack travel in: 1550
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 12...20

Testing:

Speed rpm : 275
Minimum rack travel: 7.80
Speed rpm : 400
Rack travel in mm : 6.00...6.40

CONSTANT REGULATION

Speed rpm : 325...520

TORQUE CONTROL

Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 1250
Rack travel in m: 13.40...13.50
2nd speed rpm : 800
Rack travel in m: 11.60...12.00
3rd speed rpm : 500
Rack travel in m: 11.40...11.80
4th speed rpm : 900
Rack travel in m: 12.00...12.40

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 1250
Pressure hPa : 1200
Rack travel mm : 13.40...13.50

Measurement

Speed 1/min : 1250

1st pressure hPa : -
Rack travel in m: 10.30...10.70
2nd pressure hPa : 265
Rack travel in m: 11.10...11.20
3rd pressure hPa : 440

A25

Rack travel in m: 12.50...12.90

START CUT-OUT

Speed 1/min : 250 (260)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200
Speed rpm : 800
Del.quantity cm³/ : 124.5...130.5
1000 s: (121.5...133.5)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: 1200
Speed rpm : 900
Del.quantity cm³/ : 137.5...143.5
1000 s: (134.5...146.5)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 1250
Del.quantity cm³/ : 108.5...112.5
1000 s: (106.5...114.5)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 12.40
Speed rpm : 1320...1330

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 135.0...175.0
1000 s: (130.0...180.0)
Rack travel in mm : 13.00...14.00

LOW IDLE

Speed rpm : 400
Rack travel in mm : 6.00...6.40
Del.quantity cm³/ : 15.0...21.0
1000 s: (13.0...23.0)
Spread cm³ : 4.00
1000 s: (8.00)

Remarks:

: C.D.C. # 3925085
Start-of-delivery blocking 5,75° after
start of delivery of cylinder no. 1.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM
 Edition : 15.06.93
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 402 736 845
 Injection pump
 Pump designation : PES6P120A12ORS7286
 EP type number : 0 412 726 894
 Governor
 Governor design. : RQV350...1100PA964
 -20K
 Governor no. : 0 421 815 352
 Customer-spec. information
 Customer : C.D.C.
 Engine : 6CTA-A
 1st version kW : 224.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve
 : 2 417 413 086
 Inlet press., bar : 1.50
 Overflow
 quantity min. 1/h: 95...115
 Test nozzle holder
 assembly : 1 688 901 103
 Opening
 pressure, bar : 207...210
 Orifice plate
 diameter mm : 0,7
 Test lines : 1 680 750 015
 Outside diameter
 x Wall thickness
 x Length mm : 6.00x3.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 22...24
 Prestroke mm : 3.95...4.05
 : (3.90...4.10)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4
 Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)
 Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100
 Rack travel in mm : 15.00...15.10
 Del. quantity cm³/ : 24.9...25.1
 100 s: (24.6...25.4)
 Spread cm³ : 0.5
 100 s: (0.9)
 2nd speed rpm : 350.0
 Rack travel in mm : 6.4...6.8
 Del. quantity cm³/ : 1.8...2.4
 100 s: (1.6...2.6)
 Spread cm³ : 0.8
 100 s: (1.2)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 350
 travel mm : 2.10...2.40
 2nd speed rpm : 450
 travel mm : 3.20...3.60
 3rd speed rpm : 900
 travel mm : 5.60...6.00
 4th speed rpm : 1200
 travel mm : 8.10...8.30
 5th speed rpm : 1400
 travel mm : 10.20...10.60

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1100
 Aneroid pressure h: 1200
 Del. quantity : 249.0...251.0
 1000 : (246.0...254.0)

Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 61...69

Testing:

1st rack travel in: 13.30
Speed rpm : 1250...1280
2nd rack travel in: 4.00
Speed rpm : 1395...1405
4th rack travel in: 1475
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 14...22

Testing:

Speed rpm : 275
Minimum rack travel: 7.70
Speed rpm : 350
Rack travel in mm : 6.40...6.80

CONSTANT REGULATION

Speed rpm : 325...520

TORQUE CONTROL

Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 15.00...15.10
2nd speed rpm : 650
Rack travel in m: 13.30...13.70
3rd speed rpm : 1200
Rack travel in m: 14.30...14.50
4th speed rpm : 750
Rack travel in m: 13.60...14.00

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 1100
Pressure hPa : 1200
Rack travel mm : 15.00...15.10

Measurement

Speed 1/min : 1100

1st pressure hPa : -
Rack travel in m: 9.10...9.50
2nd pressure hPa : 345
Rack travel in m: 10.80...10.90
3rd pressure hPa : 725

Rack travel in m: 13.40...13.80

START CUT-OUT

Speed 1/min : 290 (300)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200
Speed rpm : 650
Del. quantity cm³/ : 209.0...215.0
1000 s: (206.0...218.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: 1200
Speed rpm : 750
Del. quantity cm³/ : 210.5...216.5
1000 s: (207.5...219.5)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 1000
Del. quantity cm³/ : 90.5...94.5
1000 s: (88.5...96.5)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 13.30
Speed rpm : 1250...1280

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 180.0...220.0
1000 s: (175.0...225.0)
Rack travel in mm : 12.00...13.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 6.40...6.80
Del. quantity cm³/ : 18.0...24.0
1000 s: (16.0...26.0)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks:

: C.D.C. # 3922425

Start-of-delivery blocking 6,5° after
start of delivery of cylinder no. 1.

Bow dimension:

Sliding-sleeve position = 37.0 mm



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : SAK
 Edition : 22.06.93
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 402 746 939
 Injection pump
 Pump designation : PES6P130A32ORS7271
 EP type number : 0 412 736 804
 Governor
 Governor design. : RQV275...1500PA1049
 Governor no. : 0 421 814 032

Customer-spec. information
 Customer : SEATEK

Engine : 64/V9

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 025
 Inlet press., bar : 1.50
 Test nozzle holder
 assembly : 1 688 901 105
 Opening
 pressure, bar : 207...210
 Orifice plate
 diameter mm : 0,8
 Test lines : 1 680 750 075
 Outside diameter
 x Wall thickness
 x Length mm : 8.00X2.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27
 Prestroke mm : 4.40...4.50
 : (4.35...4.55)
 Rack travel in mm : 9.00...12.00

B01

Firing order : 1- 5- 3- 6- 2- 4
 Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)
 Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1500
 Rack travel in mm : 10.40...10.50
 Del.quantity cm³/ : 31.9...32.1
 100 s: (31.6...32.4)
 Spread cm³ : 0.5
 100 s: (0.9)
 2nd speed rpm : 450
 Rack travel in mm : 2.8...3.2
 Del.quantity cm³/ : 2.0...2.6
 100 s: (1.7...2.9)
 Spread cm³ : 0.8
 100 s: (1.2)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1550
 travel mm : 8.10...8.30
 2nd speed rpm : 450
 travel mm : 0.90...1.10
 3rd speed rpm : 700
 travel mm : 2.70...3.30
 4th speed rpm : 1050
 travel mm : 4.50...5.10
 5th speed rpm : 1750
 travel mm : 11.00...12.00

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 1575
 Rack travel in mm : 8.10...10.70

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1500
 Aneroid pressure h: 1000
 Del.quantity : 319.0...321.0
 1000 : (316.0...324.0)

Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control Lever
position degrees: 102...110

Testing:
1st rack travel in: 9.40
Speed rpm : 1540...1550
2nd rack travel in: 4.00
Speed rpm : 1630...1660
4th rack travel in: 1750
Speed rpm : 0.00...1.00

LOW IDLE 1
Control Lever
position degrees: 64...72

Testing:
Speed rpm : 100
Minimum rack travel: 6.20
Speed rpm : 450
Rack travel in mm : 2.90...3.10
Rack travel in mm : 2.00
Speed rpm : 460...500

Aneroid/Altitude Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 1000
Rack travel mm : 10.40...10.50

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 6.30...6.50
2nd pressure hPa : 300
Rack travel in m: 9.40...9.50
3rd pressure hPa : 185
Rack travel in m: 7.20...7.60

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: -
Speed rpm : 500
Del. quantity cm³/ : 138.0...142.0
1000 s: (135.0...145.0)

BREAKAWAY

B02

1st version
1mm rack travel less than
full load rack tr: 9.40
Speed rpm : 1540...1550

Remarks:

APPLICATION

Ship

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : IHC
 Edition : 15.06.93
 Replaces : 01.93
 Test oil : ISO-4113
 Combination no. : 0 402 746 940
 Injection pump
 Pump designation : PES6P120A320LS7284
 EP type number : 0 412 726 891
 Governor
 Governor design. : RQV350...1000PA1054K
 Governor no. : 0 421 815 337

Customer-spec. information
 Customer : NAVISTAR

Engine : DTA-531

1st version kW : 224.0
 Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 2 417 413 076

Inlet press., bar : 2.80

Overflow
 quantity min. 1/h: 170...190

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

Prestroke mm : 2.85...2.95
 : (2.80...3.00)
 Rack travel in mm : 14.00...17.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 14.30...14.40

Del. quantity cm³/ : 21.8...22.0

100 s: (21.5...22.3)

Spread cm³ : 0.8

100 s: (1.2)

2nd speed rpm : 350.0

Rack travel in mm : 5.7...5.9

Del. quantity cm³/ : 1.5...2.1

100 s: (1.3...2.3)

Spread cm³ : 0.5

100 s: (0.9)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 350
 travel mm : 1.40...1.60

2nd speed rpm : 500
 travel mm : 3.70...4.10

3rd speed rpm : 800
 travel mm : 6.80...7.20

4th speed rpm : 1000
 travel mm : 9.10...9.30

5th speed rpm : 1150
 travel mm : 11.20...11.60

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1000
 Aneroid pressure h: 1500
 Del. quantity : 218.0...220.0
 1000 : (215.0...223.0)

Spread cm³ : 8.00
1000 : (12.00)

RATED SPEED

1st version
Control lever
position degrees: 61...69

Testing:
1st rack travel in: 13.30
Speed rpm : 1045...1075
2nd rack travel in: 4.00
Speed rpm : 1170...1180
4th rack travel in: 1250
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 17...25

Testing:
Speed rpm : 275
Minimum rack travel: 7.20
Speed rpm : 350
Rack travel in mm : 5.70...5.90

CONSTANT REGULATION
Speed rpm : 325...520

TORQUE CONTROL
Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 1000
Rack travel in m: 14.30...14.40
2nd speed rpm : 650
Rack travel in m: 14.20...14.40
3rd speed rpm : 500
Rack travel in m: 13.30...13.70

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 1000
Pressure hPa : 1500
Rack travel mm : 14.30...14.40

Measurement
Speed 1/min : 1000

1st pressure hPa : -
Rack travel in m: 9.90...10.30
2nd pressure hPa : 380
Rack travel in m: 11.30...11.40
3rd pressure hPa : 900
Rack travel in m: 13.10...13.50

START CUT-OUT

Speed 1/min : 265 (275)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1500
Speed rpm : 650
Del.quantity cm³/ : 232.5...238.5
1000 s: (229.5...241.5)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 800
Del.quantity cm³/ : 99.0...103.0
1000 s: (97.0...105.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 13.30
Speed rpm : 1045...1075

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 125.0...165.0
1000 s: (120.0...180.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.70...5.90
Del.quantity cm³/ : 15.5...21.5
1000 s: (13.5...23.5)
Spread cm³ : 5.00
1000 s: (9.00)

Remarks:

: NAVISTAR #1819915c91
Setting and blocking of pointer of
start-of-delivery sensor on cyl. 1
start of delivery

Bow dimension:
Sliding-sleeve position = 37.0 mm
Delivery-valve spring pre-tension =
6.30...6.40 mm.
Permissible alteration from 6.00...6.70
mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : NAV
 Edition : 15.06.93
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 402 746 941

Injection pump
 Pump designation : PES6P120A320LS7284
 EP type number : 0 412 726 891
 Governor
 Governor design. : RQV350...1000PA1054
 -1K
 Governor no. : 0 421 815 338

Customer-spec. information
 Customer : NAVISTAR

Engine : DTA-531

1st version kW : 205.0
 Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 2 417 413 076

Inlet press., bar : 2.80

Overflow
 quantity min. 1/h: 190...210

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test Lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

Prestroke mm : 2.85...2.95
 : (2.80...3.00)
 Rack travel in mm : 10.00...13.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 14.30...14.40

Del.quantity cm³/ : 21.5...21.7

100 s: (21.2...22.0)

Spread cm³ : 0.8

100 s: (1.2)

2nd speed rpm : 350.0

Rack travel in mm : 5.7...5.9

Del.quantity cm³/ : 1.5...2.1

100 s: (1.3...2.3)

Spread cm³ : 0.5

100 s: (0.9)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 350
 travel mm : 1.40...1.60

2nd speed rpm : 500
 travel mm : 3.70...4.10

3rd speed rpm : 800
 travel mm : 6.80...7.20

4th speed rpm : 1000
 travel mm : 9.10...9.30

5th speed rpm : 1150
 travel mm : 11.20...11.60

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1000
 Aneroid pressure h: 1500
 Del.quantity : 215.0...217.0
 1000 : (212.0...220.0)

Spread cm3 : 8.00
1000 : (12.00)

RATED SPEED

1st version
Control lever
position degrees: 63...71

Testing:
1st rack travel in: 13.30
Speed rpm : 1040...1070
2nd rack travel in: 4.00
Speed rpm : 1170...1180
4th rack travel in: 1300
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 17...25

Testing:
Speed rpm : 275
Minimum rack travel: 7.50
Speed rpm : 350
Rack travel in mm : 5.70...5.90

CONSTANT REGULATION
Speed rpm : 325...520

TORQUE CONTROL
Dimension a mm : ?
Torque control curve -- 1st version
1st speed rpm : 1000
Rack travel in m: 14.30...14.40
2nd speed rpm : 650
Rack travel in m: 14.00...14.20
3rd speed rpm : 500
Rack travel in m: 12.80...13.20

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 1000
Pressure hPa : 1500
Rack travel mm : 14.30...14.40

Measurement
Speed 1/min : 1000

1st pressure hPa : -
Rack travel in m: 9.90...10.30
2nd pressure hPa : 370
Rack travel in m: 11.10...11.20
3rd pressure hPa : 880
Rack travel in m: 12.90...13.30

START CUT-OUT

Speed 1/min : 265 (275)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1500
Speed rpm : 650
Del.quantity cm3/ : 223.0...229.0
1000 s: (220.0...232.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 800
Del.quantity cm3/ : 99.0...103.0
1000 s: (97.0...105.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 13.30
Speed rpm : 1040...1070

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 125.0...165.0
1000 s: (120.0...180.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.70...5.90
Del.quantity cm3/ : 15.5...21.5
1000 s: (13.5...23.5)
Spread cm3 : 5.00
1000 s: (9.00)

Remarks: : NAVISTAR #1819916C91

Setting and blocking of pointer of
start-of-delivery sensor on cyl. 1
start of delivery

Bow dimension:
Sliding-sleeve position = 37.0 mm
Delivery-valve spring pre-tension =
6.30...6.40 mm.
Permissible alteration from 6.00...6.70
mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : NAV
 Edition : 21.04.93
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 402 746 946

Injection pump
 Pump designation : PES6P120A320LS7284
 EP type number : 0 412 726 891
 Governor
 Governor design. : RQV350...1100PA1066K
 Governor no. : 0 421 815 349

Customer-spec. information
 Customer : NAVISTAR

Engine : DTA-531

1st version kW : 222.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 2 417 413 076

Inlet press., bar : 2.80

Overflow
 quantity min. 1/h: 170...190

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

Prestroke mm : 2.85...2.95
 : (2.80...3.00)
 Rack travel in mm : 10.00...13.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

 Rack travel in mm : 13.80...13.90

 Del.quantity cm³/ : 19.9...20.1
 100 s: (19.6...20.4)

 Spread cm³ : 0.8
 100 s: (1.2)

2nd speed rpm : 350.0
 Rack travel in mm : 5.7...5.9
 Del.quantity cm³/ : 1.5...2.1
 100 s: (1.3...2.3)
 Spread cm³ : 0.5
 100 s: (0.9)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 350
 travel mm : 1.90...2.10
 2nd speed rpm : 500
 travel mm : 3.90...4.30
 3rd speed rpm : 800
 travel mm : 6.60...7.00
 4th speed rpm : 1100
 travel mm : 9.00...9.20
 5th speed rpm : 1250
 travel mm : 10.60...11.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1100
 Aneroid pressure h: 1500
 Del.quantity : 199.5...201.5
 1000 : (196.5...204.5)

Spread cm³ : 8.00
1000 : (12.00)

RATED SPEED

1st version

Control lever
position degrees: 61...69

Testing:

1st rack travel in: 12.80
Speed rpm : 1140...1170
2nd rack travel in: 4.00
Speed rpm : 1275...1285
4th rack travel in: 1350
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 15...23

Testing:

Speed rpm : 275
Minimum rack travel: 7.50
Speed rpm : 350
Rack travel in mm : 5.70...5.90

CONSTANT REGULATION

Speed rpm : 325...520

TORQUE CONTROL

Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 13.80...13.90
2nd speed rpm : 650
Rack travel in m: 13.00...13.20
3rd speed rpm : 500
Rack travel in m: 12.20...12.60

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 1100
Pressure hPa : 1500
Rack travel mm : 13.80...13.90

Measurement

Speed 1/min : 1100

1st pressure hPa : -
Rack travel in m: 9.30...9.70
2nd pressure hPa : 330
Rack travel in m: 10.60...10.70
3rd pressure hPa : 840
Rack travel in m: 12.40...12.70

START CUT-OUT

Speed 1/min : 280 (290)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1500
Speed rpm : 650
Del.quantity cm³/ : 198.5...204.5
1000 s: (195.5...207.5)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 800
Del.quantity cm³/ : 91.5...95.5
1000 s: (89.5...97.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack travel: 12.80
Speed rpm : 1140...1170

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 125.0...165.0
1000 s: (120.0...180.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.70...5.90
Del.quantity cm³/ : 15.5...21.5
1000 s: (13.5...23.5)
Spread cm³ : 5.00
1000 s: (9.00)

Remarks:

: NAVISTAR #1820267C91
Setting and blocking of pointer of
start-of-delivery sensor on cyl. 1
start of delivery

Bow dimension:

Sliding-sleeve position = 37.0 mm
Delivery-valve spring pre-tension =
6.30...6.40 mm.
Permissible alteration from 6.00...6.70
mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE 7,7 n
 Edition : 15.06.93
 Replaces : 02.92
 Test oil : ISO-4113
 Combination no. : 0 402 776 808
 Injection pump
 Pump designation : PES6P120A72ORS7223
 EP type number : 0 412 726 843
 Governor
 Governor design. : RSV400...1050POA547
 Governor no. : 0 421 833 349

Customer-spec. information
 Customer : JOHN DEERE

Engine : 6101 HZ010

1st version kW : 241.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 2 417 413 075

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 140...150

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X3.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 3.55...3.65
 : (3.50...3.70)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 12.70...12.80

Del.quantity cm³/ : 21.2...21.4

100 s: (20.9...21.7)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 400.0

Rack travel in mm : 6.0...6.2

Del.quantity cm³/ : 2.2...2.8

100 s: (2.0...3.0)

Spread cm³ : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 4.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050

Aneroid pressure h: 1200

Del.quantity : 212.5...214.5

1000 : (209.5...217.5)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Control lever
position degrees: 42...50

Testing:

1st rack travel in: 11.70
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1155...1165
3rd rack travel in: 4.00
Speed rpm : 1155...1185
4th rack travel in: 1300
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 22...30
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 5.6

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 400
Rack travel in mm : 6.00...6.20

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1050
Rack travel in m: 12.70...12.80
2nd speed rpm : 850
Rack travel in m: 13.20...13.40

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 1200
Rack travel mm : 13.20...13.40

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.60...10.80
2nd pressure hPa : 290
Rack travel in m: 11.30...11.40
3rd pressure hPa : 620
Rack travel in m: 12.50...12.90

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200
Speed rpm : 850

Del.quantity cm³/ : 222.0...228.0
1000 s: (219.0...231.0)

Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 137.5...141.5
1000 s: (135.5...143.5)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11.70
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 85.0...125.0
1000 s: (80.0...130.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 400
Rack travel in mm : 6.00...6.20
Del.quantity cm³/ : 22.5...28.5
1000 s: (20.5...30.5)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks:

Adjustment without torque-control E47014
spring retainer with 0,5 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

Starting/full-load transition speed
from holding magnet = 450 1/min.

Start-of-delivery mark at 10° cam
rotation angle after start of delivery,
cylinder 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE
 Edition : 15.06.93
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 402 776 809

Injection pump
 Pump designation : PES6P120A720RS7255
 EP type number : 0 412 726 881
 Governor
 Governor design. : RSV475...1000POA551
 Governor no. : 0 421 833 360

Customer-spec. information
 Customer : JOHN DEERE

Engine : 6101 ATO10

1st version kW : 221.0
 Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 2 417 413 079

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 140...150

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00x3.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 3.55...3.65
 : (3.50...3.70)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 12.10...12.20

Del. quantity cm³/ : 21.5...21.7

100 s: (21.2...22.0)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 475.0

Rack travel in mm : 5.3...5.5

Del. quantity cm³/ : 2.2...2.8

100 s: (2.0...3.0)

Spread cm³ : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 5.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000

Aneroid pressure h: 1200

Del. quantity : 215.0...217.0

1000 : (212.0...220.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Control lever
position degrees: 41...49

Testing:

1st rack travel in: 11.10
Speed rpm : 1050...1060
2nd rack travel in: 4.00
Speed rpm : 1120...1130
3rd rack travel in: 4.00
Speed rpm : 1125...1155
4th rack travel in: 1250
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 21...29
Setting point w/out bumper spring
Speed rpm : 475
Rack travel in mm : 4.9

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 475
Rack travel in mm : 5.30...5.50

Aneroid/Altitude
Compensator Test

1st version

Setting

Speed rpm : 500
Pressure hPa : 1200
Rack travel mm : 12.10...12.20

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.80...10.00
2nd pressure hPa : 460
Rack travel in m: 10.60...10.70
3rd pressure hPa : 735
Rack travel in m: 11.50...11.90

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 136.0...140.0
1000 s: (134.0...142.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.10
Speed rpm : 1050...1060

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 85.0...125.0
1000 s: (80.0...130.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 475
Rack travel in mm : 5.30...5.50
Del.quantity cm³/ : 22.0...28.0
1000 s: (20.0...30.0)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks:

Start-of-delivery blocking 8,75° after 3
start of delivery of cylinder no. 1.

Starting/full-load transition speed
from holding magnet = 450 1/min.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE
 Edition : 15.06.93
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 402 776 810
 Injection pump
 Pump designation : PES6P120A720RS7255
 EP type number : 0 412 726 881
 Governor
 Governor design. : RSV475...1050FOA547
 -1
 Governor no. : 0 421 833 380

Customer-spec. information
 Customer : JOHN DEERE

Engine : 6101 AT012

1st version kW : 209.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 2 417 413 079

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 140...150

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X3.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 3.55...3.65
 : (3.50...3.70)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 11.80...11.90

Del.quantity cm³/ : 20.9...21.1

100 s: (20.6...21.4)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 475.0

Rack travel in mm : 5.0...5.2

Del.quantity cm³/ : 1.7...2.3

100 s: (1.5...2.5)

Spread cm³ : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 5.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050

Aneroid pressure h: 1500

Del.quantity : 209.0...211.0

1000 : (206.0...214.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Control lever
position degrees: 51...59

Testing:

1st rack travel in: 10.80
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1185...1195
3rd rack travel in: 4.00
Speed rpm : 1180...1210
4th rack travel in: 1300
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 33...41
Setting point w/out bumper spring
Speed rpm : 475
Rack travel in mm : 4.6

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 475
Rack travel in mm : 5.00...5.20

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1050
Rack travel in m: 11.80...11.90
2nd speed rpm : 700
Rack travel in m: 12.10...12.30

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 1500
Rack travel mm : 11.80...11.90

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.90...10.10
2nd pressure hPa : 530
Rack travel in m: 10.60...10.70
3rd pressure hPa : 850
Rack travel in m: 11.50...11.90

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1500
Speed rpm : 700

Del.quantity cm³/ : 214.0...220.0
1000 s: (211.0...223.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 144.0...148.0
1000 s: (142.0...150.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 10.80
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 85.0...125.0
1000 s: (80.0...130.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 475
Rack travel in mm : 5.00...5.20
Del.quantity cm³/ : 17.5...23.5
1000 s: (15.5...25.5)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks:

: JOHN DEERE # RE46181
Start-of-delivery blocking 8,75° after
start of delivery of cylinder no. 1.

Starting/full-load transition speed
from holding magnet = 450 1/min.

Adjustment without torque-control
spring retainer with 1 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE
 Edition : 15.06.93
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 402 776 811
 Injection pump
 Pump designation : PES6P120A72ORS7255
 EP type number : 0 412 726 881
 Governor
 Governor design. : RSV400...1050P0A547
 -2
 Governor no. : 0 421 833 409

Customer-spec. information
 Customer : JOHN DEERE

Engine : 6101 AF010

1st version kW : 242.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 2 417 413 079

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 140...150

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X3.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 3.55...3.65
 : (3.50...3.70)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 12.50...12.60

Del.quantity cm³/ : 22.5...22.7

100 s: (22.2...23.0)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 400.0

Rack travel in mm : 5.4...5.6

Del.quantity cm³/ : 2.4...3.0

100 s: (2.2...3.2)

Spread cm³ : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 5.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050

Aneroid pressure h: 1500

Del.quantity : 225.5...227.5

1000 : (222.5...230.5)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Control lever
position degrees: 41...49

Testing:

1st rack travel in: 11.50
Speed rpm : 1095...1105
2nd rack travel in: 4.00
Speed rpm : 1150...1160
3rd rack travel in: 4.00
Speed rpm : 1150...1180
4th rack travel in: 1250
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 21...29
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 5.0

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 400
Rack travel in mm : 4.90...5.10

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1050
Rack travel in m: 12.50...12.60
2nd speed rpm : 750
Rack travel in m: 12.90...13.10

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 1500
Rack travel mm : 12.90...13.10

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.60...9.80
2nd pressure hPa : 620
Rack travel in m: 10.50...10.60
3rd pressure hPa : 1020
Rack travel in m: 11.90...12.30

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1500
Speed rpm : 750

Del. quantity cm³/ : 230.5...236.5
1000 s: (227.5...239.5)

Aneroid pressure h: -
Speed rpm : 500
Del. quantity cm³/ : 124.0...128.0
1000 s: (122.0...130.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11.50
Speed rpm : 1095...1105

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 85.0...125.0
1000 s: (80.0...130.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 400
Rack travel in mm : 5.40...5.60
Del. quantity cm³/ : 24.5...30.5
1000 s: (22.5...32.5)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks:

: JOHN DEERE # RE46179
Start-of-delivery blocking 8,75° after
start of delivery of cylinder no. 1.

Starting/full-load transition speed
from holding magnet = 450 1/min.

Adjustment without torque-control
spring retainer with 1 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE
 Edition : 15.06.93
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 402 776 812
 Injection pump
 Pump designation : PES6P120A72ORS7255
 EP type number : 0 412 726 881
 Governor
 Governor design. : RSV400...1050POA547
 -3
 Governor no. : 0 421 833 410

Customer-spec. information
 Customer : JOHN DEERE

Engine : 6101 AF010

1st version kW : 225.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 2 417 413 079

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 140...150

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness : 6.00X3.00X600
 x Length mm

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 3.55...3.65
 : (3.50...3.70)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 11.70...11.80

Del. quantity cm³/ : 20.6...20.8

100 s: (20.3...21.1)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 400.0

Rack travel in mm : 5.5...5.7

Del. quantity cm³/ : 2.6...3.2

100 s: (2.4...3.4)

Spread cm³ : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 4.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050

Aneroid pressure h: 1500

Del. quantity : 206.0...208.0

1000 : (203.0...211.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Control Lever
position degrees: 44...52

Testing:

1st rack travel in: 10.70
Speed rpm : 1095...1105
2nd rack travel in: 4.00
Speed rpm : 1165...1175
3rd rack travel in: 4.00
Speed rpm : 1165...1195
4th rack travel in: 1300
Speed rpm : 0.30...1.40

LOW IDLE 1

Control Lever
position degrees: 23...31
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 5.1

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 400
Rack travel in mm : 5.50...5.70

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1050
Rack travel in m: 11.70...11.80
2nd speed rpm : 750
Rack travel in m: 12.20...12.40

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 1500
Rack travel mm : 11.70...11.80

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.60...9.80
2nd pressure hPa : 560
Rack travel in m: 10.40...10.50
3rd pressure hPa : 925
Rack travel in m: 11.60...12.00

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1500
Speed rpm : 750

Del.quantity cm³/ : 213.0...219.0
1000 s: (210.0...222.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 125.0...129.0
1000 s: (123.0...131.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 10.70
Speed rpm : 1095...1105

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 85.0...125.0
1000 s: (80.0...130.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 400
Rack travel in mm : 5.50...5.70
Del.quantity cm³/ : 26.5...32.5
1000 s: (24.5...34.5)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks:

: JOHN DEERE # RE42225
Start-of-delivery blocking 8,75° after
start of delivery of cylinder no. 1.

Starting/full-load transition speed
from holding magnet = 450 1/min.

Adjustment without torque-control
spring retainer with 1 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : NAV
 Edition : 15.06.93
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 402 776 813

Injection pump
 Pump designation : PES6P120A320LS7285
 EP type number : 0 412 726 892
 Governor
 Governor design. : RSV350...750P4A563
 Governor no. : 0 421 833 411

Customer-spec. information
 Customer : NAVISTAR

Engine : DTA-531

1st version kW : 231.0
 Rated speed : 1500

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 2 417 413 076

Inlet press., bar : 2.80

Overflow
 quantity min. 1/h: 170...190

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

Prestroke mm : 2.85...2.95
 : (2.80...3.00)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 12.40...12.50

Del.quantity cm³/ : 22.5...22.7

100 s: (22.2...23.0)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 350.0

Rack travel in mm : 4.9...5.1

Del.quantity cm³/ : 1.2...1.8

100 s: (1.0...2.0)

Spread cm³ : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 3.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Del.quantity : 225.0...227.0

1000 : (222.0...230.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Control lever

position degrees: 35...43

Testing:

1st rack travel in: 11.40
 Speed rpm : 765...775
 2nd rack travel in: 4.00
 Speed rpm : 800...810
 3rd rack travel in: 4.00
 Speed rpm : 805...815
 4th rack travel in: 850
 Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
 position degrees: 14...22
 Setting point w/out bumper spring
 Speed rpm : 350
 Rack travel in mm : 5.0

Testing:

Speed rpm : 100
 Minimum rack trave: 19.00
 Speed rpm : 350
 Rack travel in mm : 4.90...5.10

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.40
 Speed rpm : 765...775

STARTING FUEL DELIVERY

Speed rpm : 100
 Del.quantity cm3/ : 165.0...205.0
 1000 s: (160.0...210.0)
 Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350
 Rack travel in mm : 4.90...5.10
 Del.quantity cm3/ : 12.0...18.0
 1000 s: (10.0...20.0)
 Spread cm3 : 8.00
 1000 s: (12.00)

Remarks:

: NAVISTAR #1820275C91

Setting and blocking of pointer of
 start-of-delivery sensor on cyl. 1
 start of delivery

Delivery-valve spring pre-tension =
 6.30...6.40 mm.
 Permissible alteration from 6.00...6.70

mm

APPLICATION

Generator

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : NAV
 Edition : 15.06.93
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 402 776 813B
 Injection pump
 Pump designation : PES6P120A320LS7285
 EP type number : 0 412 726 892
 Governor
 Governor design. : RSV350...750P4A563
 Governor no. : 0 421 833 411

Cust. part no. : 1820275C91B

Customer-spec. information
 Customer : NAVISTAR

Engine : DTA-531

1st version kw : 221.0
 Rated speed : 1500

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 2 417 413 076

Inlet press., bar : 2.80

Overflow quantity min. 1/h: 170...190

Test nozzle holder assembly : 1 688 901 101

Opening pressure, bar : 207...210

Orifice plate diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

Prestroke mm : 2.85...2.95
 : (2.80...3.00)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 850

Rack travel in mm : 11.30...11.40

Del. quantity cm³/ : 18.5...18.7

100 s: (18.2...19.0)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 350.0

Rack travel in mm : 4.9...5.1

Del. quantity cm³/ : 1.2...1.8

100 s: (1.0...2.0)

Spread cm³ : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 3.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 850

Del. quantity : 185.5...187.5

1000 : (182.5...190.5)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 41...49

Testing:
1st rack travel in: 10.30
Speed rpm : 910...920
2nd rack travel in: 4.00
Speed rpm : 940...950
3rd rack travel in: 4.00
Speed rpm : 945...955
4th rack travel in: 1000
Speed rpm : 0.00...1.00

LOW IDLE 1
Control Lever
position degrees: 14...22
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 5.0

Testing:
Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 350
Rack travel in mm : 4.90...5.10

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 10.30
Speed rpm : 910...920

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 165.0...205.0
1000 s: (160.0...210.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 4.90...5.10
Del.quantity cm3/ : 12.0...18.0
1000 s: (10.0...20.0)
Spread cm3 : 8.00
1000 s: (12.00)

Setting and blocking of pointer of
start-of-delivery sensor on cyl. 1
start of delivery

Delivery-valve spring pre-tension =

6.30...6.40 mm.
Permissible alteration from 6.00...6.70
mm

APPLICATION

Generator

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : NAV
 Edition : 15.06.93
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 402 776 8130

Injection pump
 Pump designation : PES6P120A320LS7285
 EP type number : 0 412 726 892
 Governor
 Governor design. : RSV350...750P4A563
 Governor no. : 0 421 833 411

Cust. part no. : 1820275C910

Customer-spec. information
 Customer : NAVISTAR

Engine : DTA-531

1st version kW : 201.0
 Rated speed : 1500

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 2 417 413 076

Inlet press., bar : 2.80

Overflow
 quantity min. 1/h: 170...190

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

Prestroke mm : 2.85...2.95
 : (2.80...3.00)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 850

Rack travel in mm : 10.70...10.80

Del.quantity cm³/ : 17.0...17.2

100 s: (16.7...17.5)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 350.0

Rack travel in mm : 4.9...5.1

Del.quantity cm³/ : 1.2...1.8

100 s: (1.0...2.0)

Spread cm³ : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 3.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 850

Del.quantity : 170.5...172.5

1000 : (167.5...175.5)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 41...49

Testing:

1st rack travel in: 9.70
Speed rpm : 910...920
2nd rack travel in: 4.00
Speed rpm : 940...950
3rd rack travel in: 4.00
Speed rpm : 945...955
4th rack travel in: 1000
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 14...22
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 5.0

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 350
Rack travel in mm : 4.90...5.10

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 9.70
Speed rpm : 910...920

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 165.0...205.0
1000 s: (160.0...210.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 4.90...5.10
Del.quantity cm³/ : 12.0...18.0
1000 s: (10.0...20.0)
Spread cm³ : 8.00
1000 s: (12.00)

Setting and blocking of pointer of
start-of-delivery sensor on cyl. 1
start of delivery

Delivery-valve spring pre-tension =

6.30...6.40 mm.
Permissible alteration from 6.00...6.70
mm

APPLICATION

Generator

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : NAV
 Edition : 15.06.93
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 402 776 813D

Injection pump
 Pump designation : PES6P120A320LS7285
 EP type number : 0 412 726 892
 Governor
 Governor design. : RSV350...750P4A563
 Governor no. : 0 421 833 411

Cust. part no. : 1820275C91D

Customer-spec. information
 Customer : NAVISTAR

Engine : DTA-531

1st version kw : 208.0
 Rated speed : 1500

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 2 417 413 076

Inlet press., bar : 2.80

Overflow
 quantity min. 1/h: 170...190

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

Prestroke mm : 2.85...2.95
 : (2.80...3.00)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 11.30...11.40

Del.quantity cm³/ : 19.8...20.0

100 s: (19.5...20.3)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 350.0

Rack travel in mm : 4.9...5.1

Del.quantity cm³/ : 1.2...1.8

100 s: (1.0...2.0)

Spread cm³ : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 3.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Del.quantity : 198.0...200.0

1000 : (195.0...203.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 35...43

Testing:

1st rack travel in: 10.30
Speed rpm : 765...775
2nd rack travel in: 4.00
Speed rpm : 790...800
3rd rack travel in: 4.00
Speed rpm : 795...805
4th rack travel in: 850
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 14...22
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 5.0

Testing:

Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 350
Rack travel in mm : 4.90...5.10

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 10.30
Speed rpm : 765...775

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 165.0...205.0
1000 s: (160.0...210.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 4.90...5.10
Del.quantity cm3/ : 12.0...18.0
1000 s: (10.0...20.0)
Spread cm3 : 8.00
1000 s: (12.00)

Setting and blocking of pointer of
start-of-delivery sensor on cyl. 1
start of delivery

Delivery-valve spring pre-tension =

6.30...6.40 mm.
Permissible alteration from 6.00...6.70
mm

APPLICATION

Generator

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : NAV
 Edition : 15.06.93
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 402 776 813E
 Injection pump
 Pump designation : PES6P120A320LS7285
 EP type number : 0 412 726 892
 Governor
 Governor design. : RSV350...750P4A563
 Governor no. : 0 421 833 411

Cust. part no. : 1820275C91E

Customer-spec. information
 Customer : NAVISTAR

Engine : DTA-531

1st version kW : 185.0
 Rated speed : 1500

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 2 417 413 076

Inlet press., bar : 2.80

Overflow
 quantity min. 1/h: 170...190

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

Prestroke mm : 2.85...2.95
 : (2.80...3.00)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 10.70...10.80

Del.quantity cm³/ : 18.2...18.4

100 s: (17.9...18.7)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 350.0

Rack travel in mm : 4.9...5.1

Del.quantity cm³/ : 1.2...1.8

100 s: (1.0...2.0)

Spread cm³ : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 3.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Del.quantity : 182.5...184.5

1000 : (179.5...187.5)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 34...42

Testing:

1st rack travel in: 9.70
Speed rpm : 765...775
2nd rack travel in: 4.00
Speed rpm : 790...800
3rd rack travel in: 4.00
Speed rpm : 795...805
4th rack travel in: 850
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 14...22
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 5.0

Testing:

Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 350
Rack travel in mm : 4.90...5.10

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 9.70
Speed rpm : 765...775

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 165.0...205.0
1000 s: (160.0...210.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 4.90...5.10
Del.quantity cm3/ : 12.0...18.0
1000 s: (10.0...20.0)
Spread cm3 : 8.00
1000 s: (12.00)

Setting and blocking of pointer of
start-of-delivery sensor on cyl. 1
start of delivery

Delivery-valve spring pre-tension =

6.30...6.40 mm.
Permissible alteration from 6.00...6.70
mm

APPLICATION

Generator

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : NAV
 Edition : 15.06.93
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 402 776 814
 Injection pump
 Pump designation : PES6P120A320LS7285
 EP type number : 0 412 726 892
 Governor
 Governor design. : RSV350...1000P4A564
 Governor no. : 0 421 833 413

Customer-spec. information
 Customer : NAVISTAR

Engine : DTA-531

1st version kW : 224.0
 Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil inlet temp. °C : 38...42
 Overflow valve : 2 417 413 076
 Inlet press., bar : 2.80
 Overflow quantity min. 1/h: 170...190
 Test nozzle holder assembly : 1 688 901 101
 Opening pressure, bar : 207...210
 Orifice plate diameter mm : 0,6
 Test lines : 1 680 750 008
 Outside diameter x wall thickness x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 22...24
 Prestroke mm : 2.85...2.95
 : (2.80...3.00)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4
 Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)
 Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1000
 Rack travel in mm : 12.80...12.90
 Del. quantity cm³/ : 20.0...20.2
 100 s : (19.7...20.5)
 Spread cm³ : 0.5
 100 s : (0.9)
 2nd speed rpm : 350.0
 Rack travel in mm : 5.8...6.0
 Del. quantity cm³/ : 2.9...3.5
 100 s : (2.7...3.7)
 Spread cm³ : 0.8
 100 s : (1.2)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 800
 Rack travel in mm : 0.30...0.70

Governor spring pre-tension
 Click setting x : 5.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1000
 Aneroid pressure h: 1500
 Del. quantity : 200.0...202.0
 1000 : (197.0...205.0)
 Spread cm³ : 5.00
 1000 : (9.00)

RATED SPEED

1st version

Control lever
position degrees: 51...59

Testing:

1st rack travel in: 11.80
Speed rpm : 1050...1060
2nd rack travel in: 4.00
Speed rpm : 1095...1105
3rd rack travel in: 4.00
Speed rpm : 1100...1110
4th rack travel in: 1150
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 19...27
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 5.9

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 350
Rack travel in mm : 5.80...6.00

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 1000
Pressure hPa : 1500
Rack travel mm : 12.80...12.90

Measurement

Speed 1/min : 1000

1st pressure hPa : -
Rack travel in m: 7.40...7.80
2nd pressure hPa : 430
Rack travel in m: 8.90...9.00
3rd pressure hPa : 930
Rack travel in m: 11.30...11.70

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 85.5...89.5
1000 s: (83.5...91.5)

BREAKAWAY

1st version

CO2

1mm rack travel less than

full load rack tr: 11.80
Speed rpm : 1050...1060

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 165.0...205.0
1000 s: (160.0...210.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.80...6.00
Del.quantity cm³/ : 29.5...35.5
1000 s: (27.5...37.5)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks:

Setting and blocking of pointer of
start-of-delivery sensor on cyl. 1
start of delivery

Delivery-valve spring pre-tension =
6.30...6.40 mm.

Permissible alteration from 6.00...6.70
mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : NAV
 Edition : 15.06.93
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 402 776 814A
 Injection pump
 Pump designation : PES6P120A320LS7285
 EP type number : 0 412 726 892
 Governor
 Governor design. : RSV35D...1000P4A564
 Governor no. : 0 421 833 413

Cust. part no. : 1821048C91A

Customer-spec. information
 Customer : NAVISTAR

Engine : DTA-531

1st version kw : 205.0
 Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 2 417 413 076

Inlet press., bar : 2.80

Overflow
 quantity min. 1/h: 170...190

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 22...24

Prestroke mm : 2.85...2.95
 : (2.80...3.00)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 11.90...12.00

Del.quantity cm³/ : 17.7...17.9

100 s: (17.4...18.2)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 350.0
 Rack travel in mm : 5.8...6.0
 Del.quantity cm³/ : 2.9...3.5
 100 s: (2.7...3.7)
 Spread cm³ : 0.8
 100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 800
 Rack travel in mm : 0.30...0.70

Governor spring pre-tension
 Click setting x : 5.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1000
 Aneroid pressure h: 1500
 Del.quantity : 177.0...179.0
 1000 : (174.0...182.0)
 Spread cm³ : 5.00
 1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 51...59

Testing:

1st rack travel in: 10.90
Speed rpm : 1055...1065
2nd rack travel in: 4.00
Speed rpm : 1095...1105
3rd rack travel in: 4.00
Speed rpm : 1100...1110
4th rack travel in: 1150
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 19...27
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 5.9

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 350
Rack travel in mm : 5.80...6.00

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 1000
Pressure hPa : 1500
Rack travel mm : 12.80...12.90

Measurement

Speed 1/min : 1000

1st pressure hPa : -
Rack travel in m: 7.40...7.80
2nd pressure hPa : 400
Rack travel in m: 8.70...8.90
3rd pressure hPa : 800
Rack travel in m: 10.60...11.00

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 85.5...89.5
1000 s: (83.5...91.5)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 10.90
Speed rpm : 1055...1065

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 165.0...205.0
1000 s: (160.0...210.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.80...6.00
Del.quantity cm³/ : 29.5...35.5
1000 s: (27.5...37.5)
Spread cm³ : 8.00
1000 s: (12.00)

Setting and blocking of pointer of
start-of-delivery sensor on cyl. 1
start of delivery

Delivery-valve spring pre-tension =
6.30...6.40 mm.
Permissible alteration from 6.00...6.70
mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : NAV
 Edition : 15.06.93
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 402 776 8148

Injection pump
 Pump designation : PES6P120A320LS7285
 EP type number : 0 412 726 892
 Governor
 Governor design. : RSV350...1000P4A564
 Governor no. : 0 421 833 413

Cust. part no. : 1821048C91B

Customer-spec. information
 Customer : NAVISTAR

Engine : DTA-531

1st version kW : 186.5
 Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 2 417 413 076

Inlet press., bar : 2.80

Overflow
 quantity min. 1/h: 170...190

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

Prestroke mm : 2.85...2.95
 : (2.80...3.00)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 11.10...11.20

Del.quantity cm³/ : 15.8...16.0

100 s: (15.5...16.3)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 350.0

Rack travel in mm : 5.8...6.0

Del.quantity cm³/ : 2.9...3.5

100 s: (2.7...3.7)

Spread cm³ : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 5.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000

Aneroid pressure h: 1500

Del.quantity : 158.0...160.0

1000 : (155.0...163.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 51...59

Testing:
1st rack travel in: 10.10
Speed rpm : 1055...1065
2nd rack travel in: 4.00
Speed rpm : 1095...1105
3rd rack travel in: 4.00
Speed rpm : 1100...1110
4th rack travel in: 1150
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 19...27
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 5.9

Testing:
Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 350
Rack travel in mm : 5.80...6.00

Aneroid/Altitude Compensator Test

1st version
Setting
Speed rpm : 1000
Pressure hPa : 1500
Rack travel mm : 12.80...12.90

Measurement
Speed 1/min : 1000

1st pressure hPa : -
Rack travel in m: 7.40...7.80
2nd pressure hPa : 360
Rack travel in m: 8.50...8.60
3rd pressure hPa : 680
Rack travel in m: 10.00...10.40

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 85.5...89.5
1000 s: (83.5...91.5)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 10.10
Speed rpm : 1055...1065

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 165.0...205.0
1000 s: (160.0...210.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.80...6.00
Del.quantity cm³/ : 29.5...35.5
1000 s: (27.5...37.5)
Spread cm³ : 8.00
1000 s: (12.00)

Setting and blocking of pointer of
start-of-delivery sensor on cyl. 1
start of delivery

Delivery-valve spring pre-tension =
6.30...6.40 mm.
Permissible alteration from 6.00...6.70
mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE
 Edition : 15.06.93
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 402 776 815

Injection pump
 Pump designation : PES6P120A720RS7255
 EP type number : 0 412 726 881
 Governor
 Governor design. : RSV400...900P7A569
 Governor no. : 0 421 833 418

Customer-spec. information
 Customer : JOHN DEERE

Engine : 6101 AF010

1st version kW : 285.0
 Rated speed : 1800

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 2 417 413 079

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 140...150

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00x3.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 3.55...3.65
 : (3.50...3.70)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 850

 Rack travel in mm : 14.90...15.00

 Del. quantity cm³/ : 30.9...31.1

 100 s: (30.6...31.4)

 Spread cm³ : 0.5

 100 s: (0.9)

2nd speed rpm : 400.0
 Rack travel in mm : 5.4...5.6
 Del. quantity cm³/ : 2.6...3.2
 100 s: (2.4...3.4)
 Spread cm³ : 0.8
 100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...0.70

Governor spring pre-tension
 Click setting x : 5.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 850
 Del. quantity : 309.5...311.5
 1000 : (306.5...314.5)
 Spread cm³ : 5.00
 1000 : (9.00)

RATED SPEED

1st version
 Control lever
 position degrees: 56...64

Testing:
1st rack travel in: 14.10
Speed rpm : 895...905
2nd rack travel in: 4.00
Speed rpm : 950...960
3rd rack travel in: 4.00
Speed rpm : 965...995
4th rack travel in: 1050
Speed rpm : 0.30...1.40

LOW IDLE 1
Control Lever
position degrees: 29...37
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 5.0

Testing:
Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 400
Rack travel in mm : 5.40...5.60

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 14.10
Speed rpm : 895...905

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 85.0...125.0
1000 s: (80.0...130.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 400
Rack travel in mm : 5.40...5.60
Del.quantity cm³/ : 26.0...32.0
1000 s: (24.0...34.0)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks:
: JOHN DEERE # RE42226

Start-of-delivery blocking 8,75° after
start of delivery of cylinder no. 1.

Starting/full-load transition speed
from holding magnet = 450 1/min.

APPLICATION

Generator

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE
 Edition : 15.06.93
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 402 776 816
 Injection pump
 Pump designation : PES6P120A72ORS7255
 EP type number : 0 412 726 881
 Governor
 Governor design. : RSV400...1050POA547
 -4
 Governor no. : 0 421 833 419

Customer-spec. information
 Customer : JOHN DEERE

Engine : 6101 HFO10

1st version kW : 280.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 2 417 413 079

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 140...150

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test Lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X3.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 3.55...3.65
 : (3.50...3.70)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 13.70...13.80

Del.quantity cm³/ : 26.1...26.3

100 s: (25.8...26.6)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 400.0

Rack travel in mm : 5.6...5.8

Del.quantity cm³/ : 2.9...3.5

100 s: (2.7...3.7)

Spread cm³ : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 3.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050

Aneroid pressure h: 1500

Del.quantity : 261.5...263.5

1000 : (258.5...266.5)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Control lever
position degrees: 40...48

Testing:

1st rack travel in: 12.70
Speed rpm : 1095...1105
2nd rack travel in: 4.00
Speed rpm : 1155...1165
3rd rack travel in: 4.00
Speed rpm : 1155...1185
4th rack travel in: 1250
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 17...25
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 5.2

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 400
Rack travel in mm : 5.60...5.80

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1050
Rack travel in m: 13.70...13.80
2nd speed rpm : 850
Rack travel in m: 14.00...14.20

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 1500
Rack travel mm : 14.00...14.20

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.70...9.90
2nd pressure hPa : 600
Rack travel in m: 10.90...11.00
3rd pressure hPa : 1060
Rack travel in m: 12.70...13.10

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure in: 1500
Speed rpm : 850

Del. quantity cm³/ : 276.0...282.0
1000 s: (273.0...285.0)
Aneroid pressure h: -
Speed rpm : 500
Del. quantity cm³/ : 132.5...136.5
1000 s: (130.5...138.5)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 12.70
Speed rpm : 1095...1105

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 85.0...125.0
1000 s: (80.0...130.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 400
Rack travel in mm : 5.60...5.80
Del. quantity cm³/ : 29.0...35.0
1000 s: (27.0...37.0)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks:

: JOHN DEERE # RE46178
Start-of-delivery blocking 8,75° after
start of delivery of cylinder no. 1.

Starting/full-load transition speed
from holding magnet = 450 1/min.

Adjustment without torque-control
spring retainer with 1 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB6, 11
 Edition : 21.05.92
 Replaces : 03.92
 Test oil : ISO-4113
 Combination no. : 0 403 246 031
 Injection pump
 Pump designation : PES6MW100/720RS1515
 EP type number : 0 413 206 013
 Governor
 Governor design. : RQV300...1300MW125-1
 Governor no. : 0 420 083 258

Customer-spec. information
 Customer : MB-NFZ

Engine : OM366LA

1st version kW : 127.0
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 419 992 198
 Inlet press., bar : 1.50
 Test nozzle holder
 assembly : 0 631 343 009
 Opening
 pressure, bar : 172...175
 Test lines : 1 680 750 089
 Outside diameter
 x Wall thickness
 x Length mm : 8.00x2.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32
 Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 21.00...0.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1300
 Rack travel in mm : 11.50...11.60
 Del. quantity cm³/ : 9.6...9.8
 100 s: (9.4...10.0)
 Spread cm³ : 0.3
 100 s: (0.6)
 2nd speed rpm : 300.0
 Rack travel in mm : 4.2...4.4
 Del. quantity cm³/ : 1.0...1.4
 100 s: (0.7...1.6)
 Spread cm³ : 0.3
 100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1350
 travel mm : 8.00...8.40
 2nd speed rpm : 960
 travel mm : 5.40...5.60
 3rd speed rpm : 600
 travel mm : 3.20...3.80
 4th speed rpm : 300
 travel mm : 0.90...1.30

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 1380
 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1300
 Aneroid pressure h: 1000
 Del. quantity : 96.0...98.0
 1000 : (94.0...100.0)
 Spread cm³ : 3.50
 1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 108...116

Testing:
1st rack travel in: 10.50
Speed rpm : 1340...1350
2nd rack travel in: 4.00
Speed rpm : 1430...1460
4th rack travel in: 1550
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 68...76
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 4.3

Testing:
Speed rpm : 200
Minimum rack travel: 5.00
Speed rpm : 300
Rack travel in mm : 4.20...4.40

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : -
Rack travel mm : 8.90...9.10

Measurement
Speed 1/min : 500

1st pressure hPa : 300
Rack travel in m: 9.40...9.60
2nd pressure hPa : 500
Rack travel in m: 11.10...11.30
3rd pressure hPa : 1000
Rack travel in m: 11.50...11.60

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1000
Speed rpm : 750
Del.quantity cm³/ : 89.0...92.0
1000 s: (86.5...94.5)
Spread cm³ : 5.00
1000 s: (7.0)
Aneroid pressure h: -

Speed rpm : 500
Del.quantity cm³/ : 35.0...37.0
1000 s: (33.0...39.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 10.50
Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 115.0...125.0
1000 s: (112.0...128.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 4.20...4.40
Del.quantity cm³/ : 10.0...14.0
1000 s: (7.5...16.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : NAV
 Edition : 01.03.93
 Replaces : 08.92
 Test oil : ISO-4113
 Combination no. : 0 403 446 239AA
 Injection pump
 Pump designation : PES6MW100/32ORS1189
 EP type number : 0 413 406 177
 Governor
 Governor design. : RQV350...1200MW46-21
 Governor no. : 0 420 083 201

Cust. part no. : 1819901C91

Customer-spec. information
 Customer : NAVISTAR

Engine : DTA-466

1st version kW : 186.0
 Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 2 417 413 038

Inlet press., bar : 2.80

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

C13

Test pressure, bar: 30...32

Prestroke mm : 3.25...3.35
 : (3.20...3.40)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Phasing :
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1200
 Rack travel in mm : 12.60...12.70

Del. quantity cm³/ : 13.2...13.6
 100 s: (12.9...13.9)

Spread cm³ : 0.6
 100 s: (0.9)

2nd speed rpm : 350.0
 Rack travel in mm : 5.2...5.4
 Del. quantity cm³/ : 1.6...2.0
 100 s: (1.3...2.2)
 Spread cm³ : 0.3
 100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1450
 travel mm : 9.80...10.20
 2nd speed rpm : 1250
 travel mm : 7.90...8.10
 3rd speed rpm : 550
 travel mm : 3.10...3.70
 4th speed rpm : 350
 travel mm : 1.30...1.70

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1200
 Aneroid pressure h: 1200
 Del. quantity : 132.5...136.5
 1000 : (129.5...139.5)
 Spread cm³ : 6.00
 1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 104...112

Testing:
1st rack travel in: 11.60
Speed rpm : 1285...1305
2nd rack travel in: 4.00
Speed rpm : 1415...1425
4th rack travel in: 1550
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 66...74
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 5.3

Testing:
Speed rpm : 100
Minimum rack travel: 9.00
Speed rpm : 350
Rack travel in mm : 5.20...5.40

CONSTANT REGULATION
Speed rpm : 300...450

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : -
Rack travel mm : 9.20...9.30

Measurement
Speed 1/min : 500

1st pressure hPa : 250
Rack travel in m: 10.00...10.10
2nd pressure hPa : 560
Rack travel in m: 11.40...11.80
3rd pressure hPa : 1200
Rack travel in m: 12.60...12.70

START CUT-OUT

Speed 1/min : 280 (290)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1200
Speed rpm : 800

Del.quantity cm³/ : 135.5...137.5
1000 s: (132.5...140.5)
Spread cm³ : 4.00
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 71.5...73.5
1000 s: (69.5...75.5)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.60
Speed rpm : 1285...1305

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 150.0...190.0
1000 s: (147.0...193.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.20...5.40
Del.quantity cm³/ : 16.0...20.0
1000 s: (13.5...22.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

In unlatched condition, do not
operate greater than n = 500 1/min

Set shutoff stop 1.5...2.0 mm before
shutoff.

Only perform pump setting with original
overflow valve without IH hose and
restrictor 1.2 mm diameter.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : NAV
 Edition : 01.03.93
 Replaces : 08.92
 Test oil : ISO-4113
 Combination no. : 0 403 446 254BA
 Injection pump
 Pump designation : PES6MW100/32ORS1189
 EP type number : 0 413 406 177
 Governor
 Governor design. : RGV350...1200MW46-29
 Governor no. : 0 420 083 217

Cust. part no. : 1819902C91

Customer-spec. information
 Customer : NAVISTAR

Engine : DTA-466

1st version kW : 186.0
 Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 2 417 413 038

Inlet press., bar : 2.80

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

C15

Test pressure, bar: 30...32

Prestroke mm : 3.25...3.35
 : (3.20...3.40)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Phasing :
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1200
 Rack travel in mm : 12.60...12.70
 Del.quantity cm³/ : 13.2...13.6
 100 s: (12.9...13.9)
 Spread cm³ : 0.6
 100 s: (0.9)

2nd speed rpm : 350.0
 Rack travel in mm : 5.2...5.4
 Del.quantity cm³/ : 1.6...2.0
 100 s: (1.3...2.2)
 Spread cm³ : 0.3
 100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1450
 travel mm : 9.80...10.20
 2nd speed rpm : 1250
 travel mm : 7.90...8.10
 3rd speed rpm : 550
 travel mm : 3.10...3.70
 4th speed rpm : 350
 travel mm : 1.30...1.70

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1200
 Aneroid pressure h: 1200
 Del.quantity : 132.5...136.5
 1000 : (129.5...139.5)
 Spread cm³ : 6.00
 1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 104...112

Testing:
1st rack travel in: 11.60
Speed rpm : 1285...1305
2nd rack travel in: 4.00
Speed rpm : 1415...1425
4th rack travel in: 1550
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 66...74
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 5.3

Testing:
Speed rpm : 100
Minimum rack travel: 9.00
Speed rpm : 350
Rack travel in mm : 5.20...5.40

CONSTANT REGULATION
Speed rpm : 300...450

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : -
Rack travel mm : 9.20...9.30

Measurement
Speed 1/min : 500

1st pressure hPa : 250
Rack travel in m: 10.00...10.10
2nd pressure hPa : 560
Rack travel in m: 11.40...11.80
3rd pressure hPa : 1200
Rack travel in m: 12.60...12.70

START CUT-OUT

Speed 1/min : 280 (290)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1200
Speed rpm : 800

Del.quantity cm³/ : 135.5...137.5
1000 s: (132.5...140.5)
Spread cm³ : 4.00
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 71.5...73.5
1000 s: (69.5...775.0)
1000 s: (5.00)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.60
Speed rpm : 1285...1305

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 150.0...190.0
1000 s: (147.0...193.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.20...5.40
Del.quantity cm³/ : 16.0...20.0
1000 s: (13.5...22.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

:
In unlatched condition, do not
operate greater than n = 500 1/min

Set shutoff stop 1.5...2.0 mm before
shutoff.

Only perform pump setting with original
overflow valve without IH hose and
restrictor 1.2 mm diameter.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet :
 Edition : 01.03.93
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 403 446 315
 Injection pump
 Pump designation : PES6MW100/320LS1230
 EP type number : 0 413 406 222
 Governor
 Governor design. : RQ275/950MW130
 Governor no. : 0 420 082 071

Customer-spec. information
 Customer : RBOS-HU

Engine : D10UTS150

1st version kW : 150.0
 Rated speed : 1900

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 047
 Inlet press., bar : 1.50
 Test nozzle holder
 assembly : 1 688 901 101
 Opening
 pressure, bar : 207...210
 Orifice plate
 diameter mm : 0,6
 Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 30...32

Prestroke mm : 3.80...3.90
 : (3.75...3.95)
 Rack travel in mm : 13.00...0.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 950
 Rack travel in mm : 13.10...13.20
 Del.quantity cm³/ : 13.0...13.2
 100 s: (12.7...13.5)
 Spread cm³ : 0.4
 100 s: (0.7)

2nd speed rpm : 275.0
 Rack travel in mm : 7.8...8.0
 Del.quantity cm³/ : 1.5...1.9
 100 s: (1.2...2.1)
 Spread cm³ : 0.3
 100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1050
 travel mm : 7.70...8.30
 2nd speed rpm : 1010
 travel mm : 6.30...6.50
 3rd speed rpm : 700
 travel mm : 5.80...6.20
 4th speed rpm : 385
 travel mm : 4.00...4.40
 5th speed rpm : 275
 travel mm : 1.80...2.00

GUIDE SLEEVE POSITION

Control-lever position
 Degree: 108
 Speed rpm : 700
 Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 950
 Aneroid pressure h: 800
 Del.quantity : 130.0...132.0
 1000 : (127.0...135.0)

Spread cm³ : 4.00
1000 : (7.50)

RATED SPEED

1st version
Control lever
position degrees: 90...98

Setting point:
Speed rpm : 700
Rack travel in mm : 20.0

Testing:
1st rack travel in: 12.10
Speed rpm : 1005...1020
2nd rack travel in: 4.00
Speed rpm : 1070...1100
4th rack travel in: 1200
Speed rpm : 0.10...1.00

LOW IDLE 1
Control lever
position degrees: 70...78
Setting point w/out bumper spring
Speed rpm : 275
Rack travel in mm : 7.9

Testing:
Speed rpm : 150
Minimum rack travel: 9.50
Speed rpm : 275
Rack travel in mm : 7.80...8.00

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 310
Rack travel mm : 12.80...12.90

Measurement
Speed 1/min : 500

1st pressure hPa : 800
Rack travel in m: 13.10...13.20
2nd pressure hPa : -
Rack travel in m: 11.00...11.10
3rd pressure hPa : 310
Rack travel in m: 12.80...12.90

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: -
Speed rpm : 500

Del.quantity cm³/ : 95.0...97.0
1000 s: (93.0...99.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 12.10
Speed rpm : 1005...1020

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 160.0...180.0
1000 s: (157.0...183.0)

LOW IDLE

Speed rpm : 275
Rack travel in mm : 7.80...8.00
Del.quantity cm³/ : 15.0...19.0
1000 s: (12.5...21.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

Check electrically unlatched starting
fuel delivery (EES) with 24 volt.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN 7,3 D 1
 Edition : 01.03.93
 Replaces : 10.91
 Test oil : ISO-4113

Combination no. : 0 403 456 116

Injection pump
 Pump designation : PES6MW100/321RS1215
 EP type number : 0 413 406 205
 Governor
 Governor design. : RQ250/1200MW84-8
 Governor no. : 0 420 082 063

Customer-spec. information
 Customer : MAN

Engine : D 0826 LF 04

1st version kw : 199.0
 Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60
 : (3.45...3.65)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 13.60...13.70

Del.quantity cm³/ : 16.7...16.9

100 s: (16.4...17.2)

Spread cm³ : 0.4

100 s: (0.7)

2nd speed rpm : 250.0

Rack travel in mm : 5.5...5.7

Del.quantity cm³/ : 2.1...2.5

100 s: (1.8...2.7)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1320
 travel mm : 9.30...9.70

2nd speed rpm : 1255
 travel mm : 6.50...6.70

3rd speed rpm : 360
 travel mm : 3.90...4.50

4th speed rpm : 250
 travel mm : 1.60...2.00

GUIDE SLEEVE POSITION

Control-lever position

Degree: 108

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000

Aneroid pressure h: 1200

Del.quantity : 167.5...169.5

1000 : (164.5...172.5)

Spread cm³ : 4.00

1000 : (7.50)

RATED SPEED

1st version
Control lever
position degrees: 91...99

Setting point:

Speed rpm : 600
Rack travel in mm : 20.0

Testing:

1st rack travel in: 12.60
Speed rpm : 1245...1260
2nd rack travel in: 4.00
Speed rpm : 1340...1370
4th rack travel in: 1400
Speed rpm : 0.00...1.00

LOW IDLE 1

Control Lever
position degrees: 67...75
Setting point w/out bumper spring
Speed rpm : 250
Rack travel in mm : 5.6

Testing:

Speed rpm : 150
Minimum rack travel: 7.50
Speed rpm : 250
Rack travel in mm : 5.50...5.70

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 200
Rack travel mm : 10.00...10.10

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.50...9.60
2nd pressure hPa : 700
Rack travel in m: 12.30...12.60
3rd pressure hPa : 1200
Rack travel in m: 13.60...13.70

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200
Speed rpm : 600
Del.quantity cm³/ : 174.0...178.0
1000 s: (171.0...181.0)

Spread cm³ : 6.00
1000 s: (9.0)
Aneroid pressure h: 1200
Speed rpm : 800
Del.quantity cm³/ : 167.0...171.0
1000 s: (164.0...174.0)
Aneroid pressure h: 1200
Speed rpm : 1200
Del.quantity cm³/ : 163.0...167.0
1000 s: (160.0...170.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 77.0...79.0
1000 s: (75.0...81.0)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 12.60
Speed rpm : 1245...1260

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 70.0...90.0
1000 s: (67.0...93.0)

LOW IDLE

Speed rpm : 250
Rack travel in mm : 5.50...5.70
Del.quantity cm³/ : 21.0...25.0
1000 s: (18.5...27.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

: MAN #3-7137
Start-of-delivery mark is at start of
delivery of cylinder 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN 7,3 D 2
 Edition : 01.03.93
 Replaces : 10.91
 Test oil : ISO-4113
 Combination no. : 0 403 456 117
 Injection pump
 Pump designation : PES6MW100/321RS1215
 EP type number : 0 413 406 205
 Governor
 Governor design. : RQV250...1200MW83-2
 Governor no. : 0 420 083 216

Customer-spec. information
 Customer : MAN

Engine : D 0826 LF 04

1st version kW : 199.0
 Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60
 : (3.45...3.65)
 Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 13.60...13.70

Del.quantity cm³/ : 16.7...16.9

100 s : (16.4...17.2)

Spread cm³ : 0.4

100 s : (0.7)

2nd speed rpm : 250.0

Rack travel in mm : 5.5...5.7

Del.quantity cm³/ : 2.1...2.5

100 s : (1.8...2.7)

Spread cm³ : 0.3

100 s : (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1250
 travel mm : 10.60...11.00

2nd speed rpm : 800
 travel mm : 5.90...6.10

3rd speed rpm : 450
 travel mm : 3.20...3.80

4th speed rpm : 250
 travel mm : 1.20...1.60

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000

Aneroid pressure h: 1200

Del.quantity : 167.5...169.5

1000 : (164.5...172.5)

Spread cm³ : 4.00

1000 : (7.50)

RATED SPEED

1st version

Control lever

position degrees: 124...132

Testing:
1st rack travel in: 12.60
Speed rpm : 1250...1260
2nd rack travel in: 4.00
Speed rpm : 1340...1370
4th rack travel in: 1400
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 67...75
Setting point w/out bumper spring
Speed rpm : 250
Rack travel in mm : 5.6

Testing:
Speed rpm : 150
Minimum rack travel: 7.50
Speed rpm : 250
Rack travel in mm : 5.50...5.70

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 200
Rack travel mm : 10.00...10.10

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.50...9.60
2nd pressure hPa : 700
Rack travel in m: 12.30...12.60
3rd pressure hPa : 1200
Rack travel in m: 13.60...13.70

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1200
Speed rpm : 600
Del.quantity cm³/ : 174.0...178.0
1000 s: (171.0...181.0)
Spread cm³ : 6.00
1000 s: (9.0)
Aneroid pressure h: 1200
Speed rpm : 800
Del.quantity cm³/ : 167.0...171.0
1000 s: (164.0...174.0)
Aneroid pressure h: 1200
Speed rpm : 1200
Del.quantity cm³/ : 163.0...167.0
1000 s: (160.0...170.0)
Aneroid pressure h: -

Speed rpm : 500
Del.quantity cm³/ : 77.0...79.0
1000 s: (75.0...81.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 12.60
Speed rpm : 1250...1260

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 70.0...90.0
1000 s: (67.0...93.0)

LOW IDLE

Speed rpm : 250
Rack travel in mm : 5.50...5.70
Del.quantity cm³/ : 21.0...25.0
1000 s: (18.5...27.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:
: MAN #3-7138

Start-of-delivery mark is at start of
delivery of cylinder 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM
 Edition : 26.02.93
 Replaces : 06.92
 Test oil : ISO-4113

Combination no. : 0 403 466 127

Injection pump
 Pump designation : PES6MW100/120RS1137-
 2

EP type number : 0 413 406 180

Governor

Governor design. : RSV550...1100MW2A335
 -1

Governer no. : 0 420 085 185

Customer-spec. information

Customer : CUMMINS

Engine : 6 CTA-8.3

1st version kW : 194.0

Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60
 : (3.45...3.65)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Phasing :
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 14.40...14.50

Del.quantity cm³/ : 15.2...15.4

100 s: (14.9...15.7)

Spread cm³ : 0.4

100 s: (0.7)

2nd speed rpm : 550.0
 Rack travel in mm : 6.8...7.2
 Del.quantity cm³/ : 2.2...2.6
 100 s: (2.0...2.9)
 Spread cm³ : 0.3
 100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...1.00

Governor spring pre-tension
 Click setting x : 4.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1100
 Aneroid pressure h: 900
 Del.quantity : 152.5...154.5
 1000 : (149.5...157.5)
 Spread cm³ : 4.00
 1000 : (7.50)

RATED SPEED

1st version
 Control lever
 position degrees: 93...101

Setting point:

Speed rpm : 800
Rack travel in mm : 0.6

Testing:

1st rack travel in: 13.40
Speed rpm : 1165...1175
2nd rack travel in: 4.00
Speed rpm : 1240...1250
3rd rack travel in: 4.00
Speed rpm : 1240...1270
4th rack travel in: 1350
Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever

position degrees: 68...76
Setting point w/out bumper spring
Speed rpm : 550
Rack travel in mm : 6.5

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 550
Rack travel in mm : 6.40...6.60

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1100
Rack travel in m: 14.40...14.50
2nd speed rpm : 750
Rack travel in m: 15.00...15.20
3rd speed rpm : 1000
Rack travel in m: 15.00...15.20

Aneroid/Altitude
Compensator Test

1st version

Setting

Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 15.00...15.20

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 11.50...11.70
2nd pressure hPa : 400
Rack travel in m: 12.30...12.40
3rd pressure hPa : 630
Rack travel in m: 13.80...14.20

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900
Speed rpm : 750
Del.quantity cm³/ : 156.0...160.0
1000 s: (153.0...163.0)
Spread cm³ : 6.00
1000 s: (9.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 100.0...102.0
1000 s: (98.0...104.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 13.40
Speed rpm : 1165...1175

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 130.0...150.0
1000 s: (127.0...153.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 550
Rack travel in mm : 6.80...7.20
Del.quantity cm³/ : 22.5...26.5
1000 s: (20.0...29.0)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

: CUM #3911657

Start-of-delivery mark 9° cam angle
after start of delivery cyl. 1.

Adjust stop lever to 0.5...1.0 mm
before stop.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM
 Edition : 26.02.93
 Replaces : 06.92
 Test oil : ISO-4113
 Combination no. : 0 403 466 128
 Injection pump
 Pump designation : PES6MW100/120RS1137-
 2
 EP type number : 0 413 406 180
 Governor
 Governor design. : RSV550...1100MW2A335
 -2
 Governor no. : 0 420 085 196

Customer-spec. information
 Customer : CUMMINS

Engine : 6 CTA-8.3

1st version kW : 176.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 419 992 198
 Inlet press., bar : 1.50
 Test nozzle holder
 assembly : 1 688 901 101
 Opening
 pressure, bar : 207...210
 Orifice plate
 diameter mm. : 0,6
 Test Lines : 1 680 750 014
 Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32
 Prestroke mm : 3.50...3.60
 : (3.45...3.65)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Phasing :
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100
 Rack travel in mm : 13.30...13.40
 Del. quantity cm³/ : 14.0...14.2
 100 s : (13.7...14.5)
 Spread cm³ : 0.4
 100 s : (0.7)

2nd speed rpm : 550.0
 Rack travel in mm : 7.0...7.4
 Del. quantity cm³/ : 2.8...3.2
 100 s : (2.6...3.5)
 Spread cm³ : 0.3
 100 s : (0.5)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...1.00

Governor spring pre-tension
 Click setting x : 4.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1100
 Aneroid pressure h: 1000
 Del. quantity : 140.0...142.0
 1000 : (137.0...145.0)
 Spread cm³ : 4.00
 1000 : (7.50)

RATED SPEED

1st version
 Control lever
 position degrees: 90...98

Setting point:

Speed rpm : 800
Rack travel in mm : 0.6

Testing:

1st rack travel in: 12.30
Speed rpm : 1165...1175
2nd rack travel in: 4.00
Speed rpm : 1240...1250
3rd rack travel in: 4.00
Speed rpm : 1240...1270
4th rack travel in: 1350
Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever
position degrees: 68...76
Setting point w/out bumper spring
Speed rpm : 550
Rack travel in mm : 6.7

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 550
Rack travel in mm : 6.60...6.80

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 13.30...13.40
2nd speed rpm : 750
Rack travel in m: 14.00...14.10
3rd speed rpm : 1000
Rack travel in m: 14.00...14.10

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 1000
Rack travel mm : 14.00...14.10

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.10...10.20
2nd pressure hPa : 450
Rack travel in m: 11.00...11.10
3rd pressure hPa : 675
Rack travel in m: 12.80...13.20

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000
Speed rpm : 800
Del.quantity cm3/ : 152.0...156.0
1000 s: (149.0...159.0)
Spread cm3 : 6.00
1000 s: (9.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 80.0...82.0
1000 s: (78.0...84.0)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 12.30
Speed rpm : 1165...1175

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 130.0...150.0
1000 s: (127.0...153.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 550
Rack travel in mm : 7.00...7.40
Del.quantity cm3/ : 28.5...32.5
1000 s: (26.0...35.0)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

: CUM #3921691

Start-of-delivery mark at 10° cam rotation angle after start of delivery, cylinder 1

Adjust stop lever to 0.5...1.0 mm before stop.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM
 Edition : 26.02.93
 Replaces : 02.93
 Test oil : ISO-4113

Combination no. : 0 403 466 130

Injection pump
 Pump designation : PES6MW100/12ORS1137-
 2

EP type number : 0 413 406 180

Governor
 Governor design. : RSV550...1100MW2A335
 -4

Governor no. : 0 420 085 206

Customer-spec. information
 Customer : CUMMINS

Engine : 6 CTA

1st version kW : 179.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

C27

Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60
 : (3.45...3.65)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Phasing :
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 14.40...14.50

Del. quantity cm³/ : 15.2...15.4
 100 s: (14.9...15.7)

Spread cm³ : 0.4
 100 s: (0.7)

2nd speed rpm : 550.0

Rack travel in mm : 6.8...7.1

Del. quantity cm³/ : 2.2...2.6
 100 s: (2.0...2.9)

Spread cm³ : 0.3
 100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension
 Click setting x : 4.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1100

Aneroid pressure h: 900

Del. quantity : 152.5...154.5
 1000 : (149.5...157.5)

Spread cm³ : 4.00
 1000 : (7.50)

RATED SPEED

1st version
 Control lever
 position degrees: 93...101

Setting point:
Speed rpm : 800
Rack travel in mm : 0.6

Testing:
1st rack travel in: 13.40
Speed rpm : 1165...1175
2nd rack travel in: 4.00
Speed rpm : 1240...1250
3rd rack travel in: 4.00
Speed rpm : 1240...1270
4th rack travel in: 1350
Speed rpm : 0.30...1.70

LOW IDLE 1
Control lever
position degrees: 68...76
Setting point w/out bumper spring
Speed rpm : 550
Rack travel in mm : 6.5

Testing:
Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 550
Rack travel in mm : 6.40...6.60

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 14.40...14.50

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 11.50...11.70
2nd pressure hPa : 400
Rack travel in m: 12.30...12.40
3rd pressure hPa : 630
Rack travel in m: 13.80...14.20

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: -
Speed rpm : 500
Del. quantity cm³/ : 100.0...102.0
1000 s: (98.0...104.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 13.40
Speed rpm : 1165...1175

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 130.0...150.0
1000 s: (127.0...153.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 550
Rack travel in mm : 6.80...7.10
Del. quantity cm³/ : 22.5...26.5
1000 s: (20.0...29.0)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:
: CUM #3925266

Start-of-delivery mark 9° cam angle
after start of delivery cyl. 1.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 05.03.93
 Replaces : 03.92
 Test oil : ISO-4113

Combination no. : 0 403 476 113

Injection pump
 Pump designation : PES6MW100/72ORS1131-
 1
 EP type number : 0 413 406 165
 Governor
 Governor design. : RSV350...1200MWOA342
 -10
 Governor no. : 0 420 085 187

Customer-spec. information

Customer : MB-NFZ

Engine : OM 366 LA

1st version kW : 132.0

Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test Lines : 1 680 750 089

Outside diameter
 x Wall thickness
 x Length mm : 8.00X2.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.60...3.70
 : (3.55...3.75)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1200

Rack travel in mm : 11.00...11.20

Del. quantity cm³/ : 7.6...7.8

100 s : (7.4...8.0)

Spread cm³ : 0.3

100 s : (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 5.5...6.0

Del. quantity cm³/ : 0.9...1.3

100 s : (0.6...1.5)

Spread cm³ : 0.3

100 s : (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 3.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1200

Aneroid pressure h: 700

Del. quantity : 76.0...78.0

1000 : (74.0...80.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 96...104

Setting point:

Speed rpm : 800

Rack travel in mm : 0.6

Testing:

1st rack travel in: 10.10
 Speed rpm : 1240...1245 *
 2nd rack travel in: 4.00
 Speed rpm : 1280...1293
 3rd rack travel in: 4.00
 Speed rpm : 1300...1330
 4th rack travel in: 1450
 Speed rpm : 0.30...1.70
 5th rack travel in: 1240...1255
 Speed rpm : 10.10

LOW IDLE 1

Setting point w/out bumper spring
 Speed rpm : 350
 Rack travel in mm : 5.7

Testing:

Speed rpm : 100
 Minimum rack travel: 19.00
 Speed rpm : 350
 Rack travel in mm : 5.50...6.00
 Rack travel in mm : 2.00
 Speed rpm : 400...460

TORQUE CONTROL

Dimension a mm : 1.10
 Torque control curve - 1st version
 1st speed rpm : 1200
 Rack travel in m: 11.00...11.20
 2nd speed rpm : 500
 Rack travel in m: 12.20...12.40
 3rd speed rpm : 600
 Rack travel in m: 12.00...12.20
 4th speed rpm : 1000
 Rack travel in m: 11.40...11.60

Aneroid/Altitude Compensator Test

1st version

Setting
 Speed rpm : 500
 Pressure hPa : -
 Rack travel mm : 10.10...10.30

Measurement

Speed 1/min : 500

1st pressure hPa : 200
 Rack travel in m: 11.00...11.20
 2nd pressure hPa : 300
 Rack travel in m: 11.60...11.80
 3rd pressure hPa : 700
 Rack travel in m: 12.10...12.30

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700
 Speed rpm : 500
 Del. quantity cm³/ : 70.0...73.0
 1000 s: (67.5...75.5)
 Spread cm³ : 5.00
 1000 s: (7.0)
 Aneroid pressure h: -
 Speed rpm : 500
 Del. quantity cm³/ : 36.0...38.0
 1000 s: (34.0...40.0)

STARTING FUEL DELIVERY

Speed rpm : 100
 Del. quantity cm³/ : 100.0...110.0
 1000 s: (97.0...113.0)

LOW IDLE

Speed rpm : 350
 Rack travel in mm : 5.50...6.00
 Del. quantity cm³/ : 9.0...13.0
 1000 s: (6.5...15.5)
 Spread cm³ : 3.50
 1000 s: (5.50)

Remarks:

* Read off speed set under 1.
 Add 40...48 min⁻¹ to this speed. The control-rod travel under 2. must be attained with the calculated speed profile.

Test hydr. locking device for starting with 800...1200 hPa air pressure.

Set pneumatic shutoff device to control-rod stop = 0.5...1.5 mm control-rod travel at 4.5 bar atmospheric pressure.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
Edition : 26.02.93
Replaces : 08.92
Test oil : ISO-4113
Combination no. : 0 403 476 114
Injection pump
Pump designation : PES6MW100/720RS1131-1
EP type number : 0 413 406 165
Governor
Governor design. : RSV550...1100MWOA325-4
Governor no. : 0 420 085 188

Customer-spec. information
Customer : MB-NFZ

Engine : OM366LA

1st version kw : 170.0
Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 089

Outside diameter
x Wall thickness
x Length mm : 8.00X2.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY
Test pressure, bar: 30...32

Prestroke mm : 3.60...3.70
: (3.55...3.75)
Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1080
Rack travel in mm : 13.00...13.10
Del.quantity cm3/ : 10.3...10.5
100 s : (10.1...10.7)
Spread cm3 : 0.3
100 s : (0.6)

2nd speed rpm : 550.0
Rack travel in mm : 5.8...6.3
Del.quantity cm3/ : 1.0...1.4
100 s : (0.7...1.6)
Spread cm3 : 0.3
100 s : (0.5)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3
Speed rpm : 800
Rack travel in mm : 0.30...1.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1080
Del.quantity : 103.0...105.0
1000 : (101.0...107.0)
Spread cm3 : 3.50
1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 82...90

Setting point:
Speed rpm : 800
Rack travel in mm : 0.6

Testing:
1st rack travel in: 12.0
Speed rpm : 1120...1125 *

2nd rack travel in: 4.00
Speed rpm : 1145...1158
4th rack travel in: 1550
Speed rpm : 0.30...1.70

LOW IDLE 1
Control lever
position degrees: 70...78
Setting point w/out bumper spring
Speed rpm : 550
Rack travel in mm : 6.0

Testing:
Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 550
Rack travel in mm : 5.80...6.30

SET IDLE AUXILIARY SPRING
Rack travel in mm : 2.00

TORQUE CONTROL
Torque control curve - 1st version
1st speed rpm : 1080
Rack travel in m: 13.00...13.10
2nd speed rpm : 750
Rack travel in m: 13.90...14.00
3rd speed rpm : 925
Rack travel in m: 13.40...13.60

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 750
Del. quantity cm³/ : 108.0...111.0
1000 s: (105.5...113.5)
Spread cm³ : 5.00
1000 s: (7.0)

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 100.0...110.0
1000 s: (97.0...113.0)

LOW IDLE

Speed rpm : 550
Rack travel in mm : 5.80...6.30
Del. quantity cm³/ : 10.0...14.0
1000 s: (7.5...16.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

Test hydr. locking device for starting

D04

with 500...1000 hPa air pressure.

* Read off speed set under 1.
Add 25...33 min⁻¹ to this speed. The
control-rod travel under 2. must be
attained with the calculated speed
profile.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN
 Edition : 05.03.93
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 403 486 105
 Injection pump
 Pump designation : PES6MW100/321RS1231
 EP type number : 0 413 406 225
 Governor
 Governor design. : RSV300...1100MWOA343
 -1
 Governor no. : 0 420 085 209

Customer-spec. information
 Customer : MAN

Engine : D0826LE 522

1st version kW : 154.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 003

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60
 : (3.45...3.65)

D05

Rack travel in mm : 9.00...12.00
 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 12.00...12.10

Del.quantity cm³/ : 14.2...14.4

100 s : (13.9...14.7)

Spread cm³ : 0.4

100 s : (0.7)

2nd speed rpm : 300.0

Rack travel in mm : 5.0...5.2

Del.quantity cm³/ : 0.9...1.3

100 s : (0.6...1.5)

Spread cm³ : 0.3

100 s : (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 4.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Aneroid pressure h: 1000

Del.quantity : 142.0...144.0

1000 : (139.0...147.0)

Spread cm³ : 4.00

1000 : (7.50)

RATED SPEED

1st version

Control lever

position degrees: 90...98

Setting point:

Speed rpm : 800

Rack travel in mm : 0.6

Testing:

1st rack travel in: 11.00
Speed rpm : 1150...1160
2nd rack travel in: 4.00
Speed rpm : 1230...1260
4th rack travel in: 1350
Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever
position degrees: 64...72
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 5.1

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 300
Rack travel in mm : 5.00...5.20

SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 12.00...12.10
2nd speed rpm : 800
Rack travel in m: 12.30...12.40
3rd speed rpm : 600
Rack travel in m: 12.30...12.50

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 1000
Rack travel mm : 12.00...12.10

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.40...9.50
2nd pressure hPa : 150
Rack travel in m: 9.70...9.80
3rd pressure hPa : 600
Rack travel in m: 11.60...11.90

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000
Speed rpm : 800
Del.quantity cm³/ : 144.0...148.0
1000 s: (141.0...151.0)

Spread cm³ : 6.00
1000 s: (9.0)
Aneroid pressure h: 1000
Speed rpm : 600
Del.quantity cm³/ : 142.0...146.0
1000 s: (139.0...149.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 75.0...77.0
1000 s: (73.0...79.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11.00
Speed rpm : 1150...1160

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 120.0...130.0
1000 s: (117.0...133.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 5.00...5.20
Del.quantity cm³/ : 9.0...13.0
1000 s: (6.5...15.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

: MAN #3-7263

Start-of-delivery mark is at start of
delivery of cylinder 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : SNF
 Edition : 26.02.93
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 403 546 021
 Injection pump
 Pump designation : PE6MW100/720RS1229
 EP type number : 0 413 506 108
 Governor
 Governor design. : RQV250...1200MW93-3
 Governor no. : 0 420 083 287

Customer-spec. information
 Customer : SNF

Engine : WD 612.95

1st version kW : 191.0
 Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 457 413 010

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.60...3.70
 : (3.55...3.75)
 Rack travel in mm : 9.00...12.00

D07

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1200

Rack travel in mm : 14.40...14.50

Del.quantity cm³/ : 15.1...15.3

100 s: (14.8...15.6)

Spread cm³ : 0.4

100 s: (0.7)

2nd speed rpm : 250.0

Rack travel in mm : 9.1...9.3

Del.quantity cm³/ : 1.8...2.2

100 s: (1.5...2.4)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1250

travel mm : 8.20...8.60

2nd speed rpm : 1050

travel mm : 6.30...6.50

3rd speed rpm : 500

travel mm : 2.70...3.30

4th speed rpm : 250

travel mm : 0.80...1.20

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1200

Aneroid pressure h: 1200

Del.quantity : 151.0...153.0

1000 : (148.0...156.0)

Spread cm³ : 4.00

1000 : (7.50)

RATED SPEED

1st version

Control lever

position degrees: 108...116

Testing:

1st rack travel in: 13.60

Speed rpm : 1240...1250
2nd rack travel in: 4.00
Speed rpm : 1325...1355
4th rack travel in: 1400
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 74...82
Setting point w/out bumper spring
Speed rpm : 250
Rack travel in mm : 9.2

Testing:

Speed rpm : 150
Minimum rack travel: 10.00
Speed rpm : 250
Rack travel in mm : 9.10...9.30

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 1200
Rack travel mm : 14.40...14.50

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 12.00...12.10
2nd pressure hPa : 600
Rack travel in m: 12.50...12.60
3rd pressure hPa : 800
Rack travel in m: 13.50...13.80

START CUT-OUT

Speed 1/min : 180 (200)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200
Speed rpm : 700
Del.quantity cm³/ : 157.0...161.0
1000 s: (154.0...164.0)
Spread cm³ : 6.00
1000 s: (9.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 98.0...100.0
1000 s: (96.0...102.0)

BREAKAWAY

D08

1st version
1mm rack travel less than

full load rack tr: 13.60
Speed rpm : 1240...1250

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 130.0...140.0
1000 s: (127.0...143.0)

LOW IDLE

Speed rpm : 250
Rack travel in mm : 9.10...9.30
Del.quantity cm³/ : 18.0...22.0
1000 s: (15.5...24.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD
 Edition : 21.09.92
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 403 548 027AG
 Injection pump
 Pump designation : PE8MW100/720LS1173
 EP type number : 0 413 508 108
 Governor
 Governor design. : RQV300...1150MW99
 Governor no. : 0 420 083 163

Customer-spec. information
 Customer : KHD

Engine : F8L513

1st version kW : 163.0
 Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 740 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.10...3.20
 : (3.05...3.25)

Rack travel in mm : 9.00...12.00

Firing order : 1- 8- 7- 2- 6- 5-
 4- 3

Phasing : 0-45-90-135-180-225-
 270-315
 Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1150

Rack travel in mm : 10.30...10.40

Del.quantity cm³/ : 8.9...9.1

100 s: (8.7...9.3)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 4.9...5.1

Del.quantity cm³/ : 1.1...1.5

100 s: (0.8...1.7)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1280
 travel mm : 11.10...11.50

2nd speed rpm : 1190
 travel mm : 10.10...10.30

3rd speed rpm : 400
 travel mm : 2.90...3.50

4th speed rpm : 300
 travel mm : 2.20...2.60

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1

Speed rpm : 1200
 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1150

Del.quantity : 89.0...91.0

1000 : (87.0...93.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 45...53

Testing:

1st rack travel in: 9.30
Speed rpm : 1190...1200
2nd rack travel in: 3.50
Speed rpm : 1275...1305
4th rack travel in: 1370
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 13...21
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 5.0

Testing:

Speed rpm : 100
Minimum rack travel: 6.50
Speed rpm : 300
Rack travel in mm : 4.90...5.10

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1150
Rack travel in m: 10.30...10.40
2nd speed rpm : 650
Rack travel in m: 10.60...10.70
3rd speed rpm : 1000
Rack travel in m: 10.50...10.60

START CUT-OUT

Speed 1/min : 220 (250)

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 650
Del.quantity cm³/ : 82.5...85.5
1000 s: (80.0...88.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.30
Speed rpm : 1190...1200

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm³/ : 135.0...155.0
1000 s: (132.0...158.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 4.90...5.10
Del.quantity cm³/ : 11.0...15.0
1000 s: (8.5...17.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD
 Edition : 21.09.92
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 403 548 032AA
 Injection pump
 Pump designation : PE8MW100/720LS1173
 EP type number : 0 413 508 108
 Governor
 Governor design. : RQ300/1150MW61-2
 Governor no. : 0 420 082 036

Customer-spec. information
 Customer : KHD

Engine : F8L513

1st version kW : 168.0
 Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 08...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 740 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.10...3.20
 : (3.05...3.25)
 Rack travel in mm : 9.00...12.00

Firing order : 1- 8- 7- 2- 6- 5-
 4- 3

Phasing : 0-45-90-135-180-225-
 270-315
 Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1150
 Rack travel in mm : 10.50...10.60
 Del. quantity cm³/ : 9.3...9.5
 100 s: (9.1...9.7)
 Spread cm³ : 0.3
 100 s: (0.6)

2nd speed rpm : 300.0
 Rack travel in mm : 4.9...5.1
 Del. quantity cm³/ : 1.1...1.5
 100 s: (0.8...1.7)
 Spread cm³ : 0.3
 100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1270
 travel mm : 8.60...9.00
 2nd speed rpm : 1210
 travel mm : 6.60...6.80
 3rd speed rpm : 420
 travel mm : 3.50...4.10
 4th speed rpm : 300
 travel mm : 1.50...1.90

GUIDE SLEEVE POSITION

Control-lever position
 Degree: 107
 Speed rpm : 600
 Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1150
 Del. quantity : 93.0...95.0
 1000 : (91.0...97.0)
 Spread cm³ : 3.50
 1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 26...34

Setting point:
Speed rpm : 600
Rack travel in mm : 20.0

Testing:
1st rack travel in: 9.50
Speed rpm : 1190...1205
2nd rack travel in: 3.50
Speed rpm : 1240...1270
4th rack travel in: 1350
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 8...16
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 5.0

Testing:
Speed rpm : 100
Minimum rack travel: 6.50
Speed rpm : 300
Rack travel in mm : 4.90...5.10

TORQUE CONTROL
Torque control curve - 1st version
1st speed rpm : 1150
Rack travel in m: 10.50...10.60
2nd speed rpm : 650
Rack travel in m: 10.80...10.90
3rd speed rpm : 1000
Rack travel in m: 10.70...10.80

START CUT-OUT

Speed 1/min : 220 (250)

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 650
Del. quantity cm³/ : 91.5...94.5
1000 s: (89.0...97.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 9.50
Speed rpm : 1190...1205

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 135.0...155.0
1000 s: (132.0...158.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 4.90...5.10
Del. quantity cm³/ : 11.0...15.0
1000 s: (8.5...17.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD
 Edition : 21.09.92
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 403 548 032AB
 Injection pump
 Pump designation : PE8MW100/720LS1173
 EP type number : 0 413 508 108
 Governor
 Governor design. : RQ300/1150MW61-2
 Governor no. : 0 420 082 036

Customer-spec. information
 Customer : KHD

Engine : F8L513

1st version kW : 174.0
 Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 740 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.10...3.20
 : (3.05...3.25)

Rack travel in mm : 9.00...12.00

Firing order : 1- 8- 7- 2- 6- 5-
 4- 3

Phasing : 0-45-90-135-180-225-
 270-315
 Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1150
 Rack travel in mm : 10.80...10.90
 Del. quantity cm³/ : 9.7...9.9
 100 s: (9.5...10.1)
 Spread cm³ : 0.3
 100 s: (0.6)

2nd speed rpm : 300.0
 Rack travel in mm : 4.9...5.1
 Del. quantity cm³/ : 1.1...1.5
 100 s: (0.8...1.7)
 Spread cm³ : 0.3
 100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1270
 travel mm : 8.60...9.00
 2nd speed rpm : 1210
 travel mm : 6.60...6.80
 3rd speed rpm : 420
 travel mm : 3.50...4.10
 4th speed rpm : 300
 travel mm : 1.50...1.90

GUIDE SLEEVE POSITION

Control-lever position
 Degree: 107
 Speed rpm : 600
 Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1150
 Del. quantity : 97.0...99.0
 1000 : (95.0...101.0)
 Spread cm³ : 3.50
 1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 26...34

Setting point:
Speed rpm : 600
Rack travel in mm : 20.0

Testing:
1st rack travel in: 9.80
Speed rpm : 1190...1205
2nd rack travel in: 3.50
Speed rpm : 1245...1275
4th rack travel in: 1350
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 8...16
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 5.0

Testing:
Speed rpm : 100
Minimum rack travel: 6.50
Speed rpm : 300
Rack travel in mm : 4.90...5.10

TORQUE CONTROL
Torque control curve - 1st version
1st speed rpm : 1150
Rack travel in m: 10.80...10.90
2nd speed rpm : 650
Rack travel in m: 11.10...11.20
3rd speed rpm : 1000
Rack travel in m: 11.00...11.10

START CUT-OUT

Speed 1/min: 220 (250)

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 650
Del.quantity cm³/ : 96.5...99.5
1000 s: (94.0...102.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 9.80
Speed rpm : 1190...1205

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 135.0...155.0
1000 s: (132.0...158.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 4.90...5.10
Del.quantity cm³/ : 11.0...15.0
1000 s: (8.5...17.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD
 Edition : 21.09.92
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 403 548 032AC
 Injection pump
 Pump designation : PE8MW100/720LS1173
 EP type number : 0 413 508 108
 Governor
 Governor design. : RQ300/1150MW61-2
 Governor no. : 0 420 082 036

Customer-spec. information
 Customer : KHD

Engine : F8L513

1st version kW : 178.0
 Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 419 992 198
 Inlet press., bar : 1.50
 Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 740 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.10...3.20
 : (3.05...3.25)
 Rack travel in mm : 9.00...12.00

Firing order : 1- 8- 7- 2- 6- 5-
 4- 3

Phasing : 0-45-90-135-180-225-
 270-315
 Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1150
 Rack travel in mm : 11.00...11.10
 Del. quantity cm³/ : 9.9...10.1
 100 s : (9.7...10.3)
 Spread cm³ : 0.3
 100 s : (0.6)

2nd speed rpm : 300.0
 Rack travel in mm : 4.9...5.1
 Del. quantity cm³/ : 1.1...1.5
 100 s : (0.8...1.7)
 Spread cm³ : 0.3
 100 s : (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1270
 travel mm : 8.60...9.00
 2nd speed rpm : 1210
 travel mm : 6.60...6.80
 3rd speed rpm : 420
 travel mm : 3.50...4.10
 4th speed rpm : 300
 travel mm : 1.50...1.90

GUIDE SLEEVE POSITION

Control-lever position
 Degree: 107
 Speed rpm : 600
 Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1150
 Del. quantity : 99.0...101.0
 1000 : (97.0...103.0)
 Spread cm³ : 3.50
 1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 26...34

Setting point:
Speed rpm : 600
Rack travel in mm : 20.0

Testing:
1st rack travel in: 10.00
Speed rpm : 1190...1205
2nd rack travel in: 3.50
Speed rpm : 1245...1275
4th rack travel in: 1350
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 8...16
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 5.0

Testing:
Speed rpm : 100
Minimum rack trave: 6.50
Speed rpm : 300
Rack travel in mm : 4.90...5.10

TORQUE CONTROL
Torque control curve - 1st version
1st speed rpm : 1150
Rack travel in m: 11.00...11.10
2nd speed rpm : 650
Rack travel in m: 11.30...11.40
3rd speed rpm : 1000
Rack travel in m: 11.20...11.30

START CUT-OUT

Speed 1/min : 220 (250)

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 650
Del.quantity cm³/ : 98.5...101.5
1000 s: (96.0...104.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 10.00
Speed rpm : 1190...1205

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 135.0...155.0
1000 s: (132.0...158.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 4.90...5.10
Del.quantity cm³/ : 11.0...15.0
1000 s: (8.5...17.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MWM
 Edition : 15.06.93
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 9 400 083 423
 Injection pump
 Pump designation : PES3A80D320/3RS1264
 EP type number : 9 400 083 053
 Governor
 Governor design. : RSV350...900A7C627R
 Governor no. : 9 420 083 264

Customer-spec. information

Customer : MWM
 Engine : D225-3

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 419 992 198
 Inlet press., bar : 1.50
 Test nozzle holder
 assembly : 0 681 343 009
 Opening
 pressure, bar : 172...175
 Test lines : 1 680 750 003
 Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600
 (A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27
 Prestroke mm : 2.20...2.30
 : (2.15...2.35)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 2- 3

Phasing : 0-120-240
 Tolerance + - ° : 0.50 (0.75)
 Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 9.00...12.00
 & maximum rack tra: 21.00
 Difference * CS : 4.00...5.00

BASIC SETTING

1st speed rpm : 900
 Rack travel in mm : 10.20...10.30
 Del. quantity cm³/ : 5.1...5.2
 100 s: (5.0...5.4)
 Spread cm³ : 0.2
 100 s: (0.4)
 2nd speed rpm : 350.0
 Rack travel in mm : 7.3...7.5
 Del. quantity cm³/ : 0.8...1.1
 100 s: (0.6...1.3)
 Spread cm³ : 0.4
 100 s: (0.6)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...1.00

Governor spring pre-tension
 Click setting x : 6.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 900
 Del. quantity : 51.5...52.5
 1000 : (50.0...54.0)
 Spread cm³ : 2.50
 1000 : (4.00)

RATED SPEED

1st version
 Control lever
 position degrees: 107...115

Testing:
 1st rack travel in: 9.20

Speed rpm : 940...945
2nd rack travel in: 4.00
Speed rpm : 965...978
4th rack travel in: 1100
Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever
position degrees: 75...83
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 5.5

Testing:

Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 350
Rack travel in mm : 5.90...6.10
Rack travel in mm : 2.00
Speed rpm : 420...480

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 900
Rack travel in m: 10.20...10.30
2nd speed rpm : 500
Rack travel in m: 10.20...10.40
5th speed rpm : 400
Rack travel in m: 10.90...11.50

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 9.20
Speed rpm : 940...945

STARTING FUEL DELIVERY

Speed rpm : 100
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.90...6.10

Remarks:

:

APPLICATION

Generator

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MWM
 Edition : 15.06.93
 Replaces : -
 Test oil : ISO-4113

Combination no. : 9 400 083 427

Injection pump
 Pump designation : PES4A80D320/3RS1265
 EP type number : 9 400 083 055
 Governor
 Governor design. : RSV350...900A7C627R
 Governor no. : 9 420 083 264

Customer-spec. information
 Customer : MWM

Engine : D225-4

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 003

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 2.20...2.30
 : (2.15...2.35)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 9.00...12.00
 & maximum rack tra: 21.00
 Difference ° CS : 4.00...5.00

BASIC SETTING

1st speed rpm : 900

Rack travel in mm : 10.20...10.30

Del.quantity cm³/ : 5.1...5.2

100 s: (5.0...5.4)

Spread cm³ : 0.2

100 s: (0.4)

2nd speed rpm : 350.0
 Rack travel in mm : 7.3...7.5
 Del.quantity cm³/ : 0.8...1.1
 100 s: (0.6...1.3)

Spread cm³ : 0.4
 100 s: (0.6)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 6.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 900

Del.quantity : 51.5...52.5

1000 : (50.0...54.0)

Spread cm³ : 2.50

1000 : (4.00)

RATED SPEED

1st version

Control Lever

position degrees: 107...115

Testing:

1st rack travel in: 9.20

Speed rpm : 940...945
2nd rack travel in: 4.00
Speed rpm : 965...978
4th rack travel in: 1100
Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever
position degrees: 75...83
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 5.5

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 350
Rack travel in mm : 5.90...6.10
Rack travel in mm : 2.00
Speed rpm : 420...480

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 900
Rack travel in m: 10.20...10.30
2nd speed rpm : 500
Rack travel in m: 10.20...10.40
5th speed rpm : 400
Rack travel in m: 10.90...11.50

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 9.20
Speed rpm : 940...945

STARTING FUEL DELIVERY

Speed rpm : 100
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.90...6.10

Remarks:
:

APPLICATION

Generator

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MWM
 Edition : 15.06.93
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 9 400 083 429
 Injection pump
 Pump designation : PES6A80D320/3RS1261
 EP type number : 9 400 083 057
 Governor
 Governor design. : RSV350...900A7C627R
 Governor no. : 9 420 083 264

Customer-spec. information
 Customer : MWM

Engine : D225-6

TEST BENCH REQUIREMENTS

Test oil inlet temp. °C : 38...42
 Overflow valve : 1 419 992 198
 Inlet press., bar : 1.50
 Test nozzle holder assembly : 0 681 343 009
 Opening pressure, bar : 172...175
 Test Lines : 1 680 750 003
 Outside diameter x Wall thickness x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27
 Prestroke mm : 2.20...2.30
 : (2.15...2.35)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 9.00...12.00
 & maximum rack tra: 21.00
 Difference ° CS : 4.00...5.00

BASIC SETTING

1st speed rpm : 900

Rack travel in mm : 10.20...10.30

Del.quantity cm³/ : 5.1...5.2

100 s: (5.0...5.4)

Spread cm³ : 0.2

100 s: (0.4)

2nd speed rpm : 350.0

Rack travel in mm : 7.3...7.5

Del.quantity cm³/ : 0.8...1.1

100 s: (0.6...1.3)

Spread cm³ : 0.4

100 s: (0.6)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 6.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 900

Del.quantity : 51.5...52.5

1000 : (50.0...54.0)

Spread cm³ : 2.50

1000 : (4.00)

RATED SPEED

1st version

Control lever

position degrees: 107...115

Testing:

1st rack travel in: 9.20

Speed rpm : 940...945
2nd rack travel in: 4.00
Speed rpm : 965...978
4th rack travel in: 1100
Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever
position degrees: 75...83
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 5.5

Testing:

Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 350
Rack travel in mm : 5.90...6.10
Rack travel in mm : 2.00
Speed rpm : 420...480

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 900
Rack travel in m: 10.20...10.30
2nd speed rpm : 500
Rack travel in m: 10.20...10.40
5th speed rpm : 400
Rack travel in m: 10.90...11.50

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 9.20
Speed rpm : 940...945

STARTING FUEL DELIVERY

Speed rpm : 100
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.90...6.10

Remarks:

:

APPLICATION

Generator

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM
 Edition : 17.06.93
 Replaces : 13.03.92
 Test oil : ISO-4113

Combination no. : 9 400 083 449DD

Injection pump
 Pump designation : PES6A100D320/3RS2691
 EP type number : 9 410 230 025
 Governor
 Governor design. : RSV400...1100A2C2209
 R

Governer no. : 9 420 083 201

Cust. part no. : 3354913

Customer-spec. information
 Customer : CUMMINS

Engine : 6 CT 8.3 L

1st version kW : 129.1
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 9.00...12.00
 & maximum rack tra: 21.00
 Difference ° CS : 3.00...4.00

BASIC SETTING

1st speed rpm : 1175

Rack travel in mm : 10.10...10.20

Del.quantity cm³/ : 8.7...8.9

100 s: (8.5...9.1)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 400.0

Rack travel in mm : 5.6...5.8

Del.quantity cm³/ : 1.6...2.0

100 s: (1.4...2.3)

Spread cm³ : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 2.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1175

Del.quantity : 87.5...89.5

1000 : (85.5...91.5)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 87...95

Testing:

1st rack travel in: 9.10
Speed rpm : 1215...1225
2nd rack travel in: 4.00
Speed rpm : 1245...1275
4th rack travel in: 1400
Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever
position degrees: 62...70
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 5.2

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 400
Rack travel in mm : 5.60...5.80
Rack travel in mm : 2.00
Speed rpm : 570...630

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1175
Rack travel in m: 10.10...10.20
2nd speed rpm : 500
Rack travel in m: 11.30...11.50
4th speed rpm : 800
Rack travel in m: 10.70...10.90

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 500
Del.quantity cm³/ : 90.5...93.5
1000 s: (88.0...96.0)
Speed rpm : 800
Del.quantity cm³/ : 92.5...95.5
1000 s: (90.0...98.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.10
Speed rpm : 1215...1225

STARTING FUEL DELIVERY

Speed rpm : 100

D24

Del.quantity cm³/ : 135.0...149.0
1000 s: (132.0...152.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 400
Rack travel in mm : 5.60...5.80
Del.quantity cm³/ : 16.5...20.5
1000 s: (14.0...23.0)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

: VERSAO 33

Start-of-delivery mark 11° cam angle
after start of delivery cyl. 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 5,9 x
 Edition : 15.06.93
 Replaces : 01.93
 Test oil : ISO-4113

Combination no. : 9 400 083 459

Injection pump
 Pump designation : PES6A95D120RS2822
 EP type number : 9 400 084 029
 Governor
 Governor design. : RQV350...1250AB1235
 -2R
 Governor no. : 9 420 080 311

Customer-spec. information
 Customer : CUMMINS

Engine : 6 BT

1st version kW : 119.3
 Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 2.75...2.85
 : (2.70...2.90)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance ± - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 9.00...12.00
 & maximum rack tra: 21.00
 Difference ° CS : 2.00...3.00

BASIC SETTING

1st speed rpm : 1250

Rack travel in mm : 12.70...12.80

Del. quantity cm³/ : 8.6...8.8

100 s: (8.4...9.0)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 5.0...5.2

Del. quantity cm³/ : 0.6...1.0

100 s: (0.4...1.2)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1300

travel mm : 6.80...6.90

2nd speed rpm : 350

travel mm : 1.20...1.70

3rd speed rpm : 700

travel mm : 4.00...4.50

4th speed rpm : 1550

travel mm : 8.30...8.80

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1530

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1250
Aneroid pressure h: 600
Del.quantity : 86.0...88.0
1000 : (84.0...90.0)
Spread cm³ : 3.50
1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 107...115

Testing:

1st rack travel in: 11.70
Speed rpm : 1310...1320
2nd rack travel in: 4.00
Speed rpm : 1545...1575
4th rack travel in: 1750
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 63...71

Testing:

Speed rpm : 100
Minimum rack travel: 7.00
Speed rpm : 350
Rack travel in mm : 5.00...5.20

CONSTANT REGULATION

Speed rpm : 475...575

Aneroid/Altitude
Compensator Test

1st version

Setting

Speed rpm : 500
Pressure hPa : 600
Rack travel mm : 12.70...12.80

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 11.60...11.90
2nd pressure hPa : 320
Rack travel in m: 11.70...11.80
3rd pressure hPa : 410
Rack travel in m: 12.30...12.50

START CUT-OUT

Speed 1/min : 270 (290)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 600
Speed rpm : 700
Del.quantity cm³/ : 80.0...83.0
1000 s: (77.5...85.5)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 64.0...67.0
1000 s: (62.0...69.0)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 11.70
Speed rpm : 1310...1320

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 115.0...135.0
1000 s: (110.0...140.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.00...5.20
Del.quantity cm³/ : 6.0...10.0
1000 s: (4.0...12.0)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

: C.D.C. # 3355394

Start-of-delivery mark 9.5° cam angle
after start of delivery cyl. 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MWM
 Edition : 15.06.93
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 9 400 085 223
 Injection pump
 Pump designation : PES3A80D32ORS1281
 EP type number : 9 400 083 054
 Governor
 Governor design. : RSV350...1400A2C2129
 -3R
 Governor no. : 9 420 083 265

Customer-spec. information
 Customer : MWM

Engine : D 229-3

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 419 992 198
 Inlet press., bar : 1.50
 Test nozzle holder
 assembly : 0 681 343 009
 Opening
 pressure, bar : 172...175
 Test lines : 1 680 750 003
 Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27
 Prestroke mm : 2.20...2.30
 : (2.15...2.35)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 2- 3

Phasing : 0-120-240
 Tolerance + - ° : 0.50 (0.75)
 Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 9.00...12.00
 & maximum rack tra: 21.00
 Difference ° CS : 4.00...5.00

BASIC SETTING

1st speed rpm : 1400
 Rack travel in mm : 9.90...10.00
 Del. quantity cm³/ : 5.4...5.5
 100 s: (5.3...5.7)
 Spread cm³ : 0.2
 100 s: (0.4)

2nd speed rpm : 350.0
 Rack travel in mm : 6.9...7.1
 Del. quantity cm³/ : 0.6...0.9
 100 s: (0.4...1.1)
 Spread cm³ : 0.4
 100 s: (0.6)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...1.00

Governor spring pre-tension
 Click setting x : 5.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1400
 Del. quantity : 54.5...55.5
 1000 : (53.0...57.0)
 Spread cm³ : 2.50
 1000 : (4.00)

RATED SPEED

1st version
 Control lever
 position degrees: 108...116

Testing:

1st rack travel in: 8.90
Speed rpm : 1440...1450
2nd rack travel in: 4.00
Speed rpm : 1495...1525
4th rack travel in: 1700
Speed rpm : 0.30...1.70

LOW IDLE 1
Control lever
position degrees: 74...82
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 6.5

Testing:
Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 350
Rack travel in mm : 6.90...7.10
Rack travel in mm : 2.00
Speed rpm : 640...700

TORQUE CONTROL
Torque control curve - 1st version
1st speed rpm : 1400
Rack travel in m: 9.90...10.00
2nd speed rpm : 500
Rack travel in m: 10.70...10.80
3rd speed rpm : 700
Rack travel in m: 10.60...10.80
4th speed rpm : 1100
Rack travel in m: 10.20...10.50

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 500
Del.quantity cm3/ : 48.0...51.0
1000 s: (46.5...52.5)
Speed rpm : 700
Del.quantity cm3/ : 50.5...53.5
1000 s: (49.0...55.0)
Speed rpm : 1100
Del.quantity cm3/ : 54.5...57.5
1000 s: (53.0...59.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 8.90
Speed rpm : 1440...1450

STARTING FUEL DELIVERY

Speed rpm : 100

D28

Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 6.90...7.10
Del.quantity cm3/ : 6.5...9.5
1000 s: (4.5...11.5)
Spread cm3 : 4.00
1000 s: (6.00)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MWM
 Edition : 15.06.93
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 9 400 085 239
 Injection pump
 Pump designation : PES6A90D32ORS2701
 EP type number : 9 400 083 094
 Governor
 Governor design. : RSV350...1150A2C2097
 -1R
 Governor no. : 9 420 083 267

Customer-spec. information
 Customer : MWM

Engine : TD229-6

1st version kW : 106.7
 Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 003

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.65...2.75
 : (2.60...2.80)

E01

Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 9.00...12.00
 & maximum rack tra: 21.00
 Difference ° CS : 4.00...5.00

BASIC SETTING

1st speed rpm : 1150

Rack travel in mm : 10.80...10.90

Del.quantity cm³/ : 8.1...8.2

100 s: (7.9...8.4)

Spread cm³ : 0.3

100 s: (0.7)

2nd speed rpm : 350.0

Rack travel in mm : 5.3...5.5

Del.quantity cm³/ : 0.8...1.2

100 s: (0.6...1.4)

Spread cm³ : 0.4

100 s: (0.7)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 4.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1150

Del.quantity : 81.0...82.0

1000 : (79.0...84.0)

Spread cm³ : 3.00

1000 : (7.00)

RATED SPEED

1st version

Control lever
position degrees: 93...101

Testing:

1st rack travel in: 9.80
Speed rpm : 1190...1200
2nd rack travel in: 4.00
Speed rpm : 1240...1270
4th rack travel in: 1400
Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever
position degrees: 67...75
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 4.9

Testing:

Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 350
Rack travel in mm : 5.30...5.50
Rack travel in mm : 2.00
Speed rpm : 535...595

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1150
Rack travel in m: 10.80...10.90
2nd speed rpm : 500
Rack travel in m: 11.20...11.30
3rd speed rpm : 700
Rack travel in m: 11.20...11.30
4th speed rpm : 950
Rack travel in m: 11.00...11.10

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 500
Del.quantity cm3/ : 74.0...77.0
1000 s: (72.0...79.0)
Speed rpm : 700
Del.quantity cm3/ : 76.5...79.5
1000 s: (74.5...81.5)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 9.80
Speed rpm : 1190...1200

STARTING FUEL DELIVERY

Speed rpm : 100
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.30...5.50
Del.quantity cm3/ : 8.0...12.0
1000 s: (6.0...14.0)
Spread cm3 : 4.50
1000 s: (7.00)

Remarks:

: VALMET

APPLICATION

Tractor (tractor engines)

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MWM
 Edition : 15.06.93
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 9 400 085 240
 Injection pump
 Pump designation : PES4A90D320RS2702
 EP type number : 9 400 083 095
 Governor
 Governor design. : RSV350...1150A2C2129
 -4R
 Governor no. : 9 420 083 268

Customer-spec. information
 Customer : MWM

Engine : D 229-4

1st version kW : 75.0
 Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 003

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 2.65...2.75
 : (2.60...2.80)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 9.00...12.00
 & maximum rack tra: 21.00
 Difference ° CS : 3.00...4.00

BASIC SETTING

1st speed rpm : 1150

Rack travel in mm : 9.00...9.10

Del.quantity cm³/ : 6.3...6.4

100 s: (6.1...6.6)

Spread cm³ : 0.3

100 s: (0.7)

2nd speed rpm : 350.0

Rack travel in mm : 5.6...5.8

Del.quantity cm³/ : 1.0...1.4

100 s: (0.8...1.6)

Spread cm³ : 0.4

100 s: (0.7)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 4.75

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1150

Del.quantity : 63.5...64.5

1000 : (61.5...66.5)

Spread cm³ : 3.00

1000 : (7.00)

RATED SPEED

1st version

Control lever
position degrees: 95...103

Testing:

1st rack travel in: 8.00
Speed rpm : 1190...1200
2nd rack travel in: 4.00
Speed rpm : 1230...1260
4th rack travel in: 1400
Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever
position degrees: 70...78
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 5.2

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 350
Rack travel in mm : 5.60...5.80
Rack travel in mm : 2.00
Speed rpm : 560...620

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1150
Rack travel in m: 9.00...9.10
2nd speed rpm : 500
Rack travel in m: 10.10...10.20
3rd speed rpm : 800
Rack travel in m: 9.70...9.90
4th speed rpm : 1000
Rack travel in m: 9.10...9.40

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 500
Del. quantity cm³/ : 60.5...63.5
1000 s: (58.5...65.5)
Speed rpm : 800
Del. quantity cm³/ : 65.5...68.5
1000 s: (63.5...70.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8.00
Speed rpm : 1190...1200

STARTING FUEL DELIVERY

Speed rpm : 100
Rack travel in mm : 19.00...21.00

Remarks:

: VALMET

APPLICATION

Tractor (tractor engines)

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MWM
 Edition : 15.06.93
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 9 400 085 243
 Injection pump
 Pump designation : PES4A80D32ORS1282-1
 EP type number : 9 400 083 097
 Governor
 Governor design. : RS350/1500A2C2073-2R
 Governor no. : 9 420 083 269

Customer-spec. information
 Customer : MWM

Engine : D 229-4

TEST BENCH REQUIREMENTS

Test oil inlet temp. °C : 38...42
 Overflow valve : 1 419 992 198
 Inlet press., bar : 1.50
 Test nozzle holder assembly : 0 681 343 009
 Opening pressure, bar : 172...175
 Test lines : 1 680 750 003
 Outside diameter x Wall thickness x Length mm : 6.00x2.00x600
 (A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.65...2.75
 : (2.60...2.80)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 9.00...12.00
 & maximum rack tra: 21.00
 Difference ° CS : 4.00...5.00

BASIC SETTING

1st speed rpm : 1500
 Rack travel in mm : 9.20...9.30
 Del.quantity cm³/ : 5.8...5.9
 100 s: (5.6...6.0)
 Spread cm³ : 0.2
 100 s: (0.4)
 2nd speed rpm : 350.0
 Rack travel in mm : 6.0...6.2
 Del.quantity cm³/ : 0.7...1.0
 100 s: (0.5...1.2)
 Spread cm³ : 0.4
 100 s: (0.6)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...1.00

Governor spring pre-tension
 Click setting x : 5.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1500
 Del.quantity : 58.0...59.0
 1000 : (56.5...60.5)
 Spread cm³ : 2.50
 1000 : (4.00)

RATED SPEED

1st version
 Control lever
 position degrees: 111...119

Testing:
 1st rack travel in: 8.20

Speed rpm : 1540...1550
2nd rack travel in: 4.00
Speed rpm : 1585...1615
4th rack travel in: 1750
Speed rpm : 0.30...1.70

Remarks:

LOW IDLE 1

Control lever
position degrees: 73...81
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 6.1

Testing:

Speed rpm : 250
Minimum rack trave: 8.00
Speed rpm : 350
Rack travel in mm : 6.00...6.20
Rack travel in mm : 4.00
Speed rpm : 370...430
Speed rpm : 600
Maximum rack trave: 1.50

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1500
Rack travel in m: 9.20...9.30
2nd speed rpm : 500
Rack travel in m: 10.60...10.70
3rd speed rpm : 900
Rack travel in m: 10.20...10.40
4th speed rpm : 1200
Rack travel in m: 9.50...9.80

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 500
Del. quantity cm³/ : 58.0...61.0
1000 s: (56.5...62.5)
Speed rpm : 900
Del. quantity cm³/ : 62.5...65.5
1000 s: (61.0...67.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8.20
Speed rpm : 1540...1550

STARTING FUEL DELIVERY

Speed rpm : 100
Rack travel in mm : 19.00...21.00

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MWM
 Edition : 15.06.93
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 9 400 085 257
 Injection pump
 Pump designation : PES4A80D32ORS1282
 EP type number : 9 400 083 056
 Governor
 Governor design. : RSV350...1100A2C2129
 -6R
 Governor no. : 9 420 083 270

Customer-spec. information
 Customer : MWM

Engine : D 229-4

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 003

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.20...2.30
 : (2.15...2.35)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 9.00...12.00
 & maximum rack tra: 21.00
 Difference ° CS : 4.00...5.00

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 8.70...8.80

Del. quantity cm³/ : 4.8...4.9

100 s: (4.7...5.1)

Spread cm³ : 0.2

100 s: (0.4)

2nd speed rpm : 350.0

Rack travel in mm : 6.4...6.6

Del. quantity cm³/ : 1.0...1.3

100 s: (0.8...1.5)

Spread cm³ : 0.4

100 s: (0.6)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 5.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Del. quantity : 48.5...49.5

1000 : (47.0...51.0)

Spread cm³ : 2.50

1000 : (4.00)

RATED SPEED

1st version

Control lever

position degrees: 94...102

Testing:

1st rack travel in: 7.70
Speed rpm : 1140...1150
2nd rack travel in: 4.00
Speed rpm : 1180...1210
4th rack travel in: 1300
Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever
position degrees: 72...80
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 6.0

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 350
Rack travel in mm : 6.40...6.60
Rack travel in mm : 2.00
Speed rpm : 605...665

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 8.70...8.80
2nd speed rpm : 500
Rack travel in m: 10.00...10.10
4th speed rpm : 900
Rack travel in m: 9.10...9.40

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 500
Del.quantity cm³/ : 49.5...52.5
1000 s: (48.0...54.0)
Speed rpm : 900
Del.quantity cm³/ : 48.5...51.5
1000 s: (47.0...53.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 7.70
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Rack travel in mm : 19.00...21.00

Remarks:

:

APPLICATION

Tractor (tractor engines)

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MWM
 Edition : 15.06.93
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 9 400 085 268
 Injection pump
 Pump designation : PES4A90D320RS2702
 EP type number : 9 400 083 095
 Governor
 Governor design. : RSV350...1150A2C2129
 -7R
 Governor no. : 9 420 083 273

Customer-spec. information
 Customer : MWM

Engine : TD 229 EC-4

1st version kW : 66.2
 Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 003

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.65...2.75
 : (2.60...2.80)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 9.00...12.00
 & maximum rack tra: 21.00
 Difference ° CS : 3.00...4.00

BASIC SETTING

1st speed rpm : 1150

Rack travel in mm : 10.30...10.40

Del.quantity cm³/ : 7.7...7.8

100 s: (7.5...8.0)

Spread cm³ : 0.3

100 s: (0.7)

2nd speed rpm : 350.0

Rack travel in mm : 5.5...5.7

Del.quantity cm³/ : 1.1...1.5

100 s: (0.9...1.7)

Spread cm³ : 0.4

100 s: (0.7)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 4.30

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1150

Del.quantity : 77.5...78.5

1000 : (75.5...80.5)

Spread cm³ : 3.00

1000 : (7.00)

RATED SPEED

1st version

Control lever
position degrees: 93...101

Testing:
1st rack travel in: 9.30
Speed rpm : 1190...1200
2nd rack travel in: 4.00
Speed rpm : 1240...1270
4th rack travel in: 1400
Speed rpm : 0.30...1.70

LOW IDLE 1
Control lever
position degrees: 68...76
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 5.1

Testing:
Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 350
Rack travel in mm : 5.50...5.70
Rack travel in mm : 2.00
Speed rpm : 550...610

TORQUE CONTROL
Torque control curve - 1st version
1st speed rpm : 1150
Rack travel in m: 10.30...10.40
2nd speed rpm : 500
Rack travel in m: 10.80...10.90
4th speed rpm : 700
Rack travel in m: 10.50...10.70

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 500
Del. quantity cm³/ : 69.5...72.5
1000 s: (67.5...74.5)
Speed rpm : 700
Del. quantity cm³/ : 71.0...74.0
1000 s: (69.0...76.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 9.30
Speed rpm : 1190...1200

STARTING FUEL DELIVERY

Speed rpm : 100
Rack travel in mm : 19.00...21.00

E10

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.50...5.70
Del. quantity cm³/ : 11.0...15.0
1000 s: (9.0...17.0)
Spread cm³ : 4.50
1000 s: (7.00)

Remarks: : VALMET

APPLICATION

Tractor (tractor engines)

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 15.06.93
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 9 400 085 283
 Injection pump
 Pump designation : PES6A90D410RS2293
 EP type number : 0 410 896 031
 Governor
 Governor design. : RSV350...1250A0C1150
 -3L
 Governor no. : 9 420 083 255

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM 352-A

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 419 992 198
 Inlet press., bar : 1.50
 Test nozzle holder
 assembly : 0 681 343 009
 Opening
 pressure, bar : 172...175
 Test lines : 1 680 750 014
 Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27
 Prestroke mm : 2.15...2.25
 : (2.10...2.30)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1250
 Rack travel in mm : 10.00...10.10
 Del. quantity cm³/ : 6.1...6.2
 100 s: (5.9...6.5)
 Spread cm³ : 0.3
 100 s: (0.7)
 2nd speed rpm : 350.0
 Rack travel in mm : 7.1...7.3
 Del. quantity cm³/ : 1.0...1.4
 100 s: (0.8...1.6)
 Spread cm³ : 0.4
 100 s: (0.7)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...1.00

Governor spring pre-tension
 Click setting x : 3.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1250
 Del. quantity : 61.5...62.5
 1000 : (59.0...65.0)
 Spread cm³ : 3.00
 1000 : (7.00)

RATED SPEED

1st version
 Control lever
 position degrees: 100...108

Testing:
 1st rack travel in: 9.00
 Speed rpm : 1290...1300
 2nd rack travel in: 4.00
 Speed rpm : 1335...1365
 4th rack travel in: 1450
 Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever
position degrees: 72...80
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 6.7

Testing:
Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 350
Rack travel in mm : 7.10...7.30
Rack travel in mm : 2.00
Speed rpm : 430...490

TORQUE CONTROL
Torque control curve - 1st version
1st speed rpm : 1250
Rack travel in m: 10.00...10.10
2nd speed rpm : 500
Rack travel in m: 10.00...10.20
5th speed rpm : 400
Rack travel in m: 11.20...11.80

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 9.00
Speed rpm : 1290...1300

STARTING FUEL DELIVERY

Speed rpm : 200
Rack travel in mm : 14.20...14.80

Remarks:
:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MWM
 Edition : 15.06.93
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 9 400 085 313
 Injection pump
 Pump designation : PES4A90D32ORS2744
 EP type number : 9 400 084 012
 Governor
 Governor design. : RSV350...1150A2C2129
 -8R
 Governor no. : 9 420 083 277

Customer-spec. information
 Customer : MWM

Engine : TD 229 EC-4

1st version kW : 73.6
 Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 2.70...2.80
 : (2.65...2.85)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 9.00...12.00
 & maximum rack tra: 21.00
 Difference ° CS : 3.00...4.00

BASIC SETTING

1st speed rpm : 1150

Rack travel in mm : 10.50...10.60

Del. quantity cm³/ : 8.6...8.7

100 s: (8.4...8.9)

Spread cm³ : 0.3

100 s: (0.7)

2nd speed rpm : 350.0

Rack travel in mm : 5.3...5.5

Del. quantity cm³/ : 1.1...1.5

100 s: (0.9...1.7)

Spread cm³ : 0.4

100 s: (0.7)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 5.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1150

Del. quantity : 86.5...87.5

1000 : (84.5...89.5)

Spread cm³ : 3.00

1000 : (7.00)

RATED SPEED

1st version

Control lever
position degrees: 99...107

Testing:

1st rack travel in: 9.50
Speed rpm : 1190...1200
2nd rack travel in: 4.00
Speed rpm : 1260...1290
4th rack travel in: 1450
Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever
position degrees: 73...81
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 4.9

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 350
Rack travel in mm : 5.30...5.50
Rack travel in mm : 2.00
Speed rpm : 555...615

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1150
Rack travel in m: 10.50...10.60
2nd speed rpm : 500
Rack travel in m: 10.80...10.90
3rd speed rpm : 800
Rack travel in m: 10.80...10.90
4th speed rpm : 960
Rack travel in m: 10.60...10.80

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 500
Del.quantity cm³/ : 80.0...83.0
1000 s: (78.0...85.0)
Speed rpm : 800
Del.quantity cm³/ : 84.5...87.5
1000 s: (82.5...89.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.50
Speed rpm : 1190...1200

STARTING FUEL DELIVERY

Speed rpm : 100
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.30...5.50
Del.quantity cm³/ : 11.0...15.0
1000 s: (9.0...17.0)
Spread cm³ : 4.50
1000 s: (7.00)

Remarks:

: VALMET

APPLICATION

Tractor (tractor engines)

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MWM
 Edition : 15.06.93
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 9 400 085 314
 Injection pump
 Pump designation : PES6A90D320RS2718
 EP type number : 9 400 084 003
 Governor
 Governor design. : RSV350...1150A2C2097
 -2R
 Governor no. : 9 420 083 276

Customer-spec. information
 Customer : MWM

Engine : TD 229 EC-06

1st version kW : 117.8
 Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.70...2.80
 : (2.65...2.85)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 9.00...12.00
 & maximum rack tra: 21.00
 Difference ° CS : 3.00...4.00

BASIC SETTING

1st speed rpm : 1150

Rack travel in mm : 11.30...11.40

Del. quantity cm³/ : 8.6...8.7

100 s: (8.4...8.9)

Spread cm³ : 0.3

100 s: (0.7)

2nd speed rpm : 350.0

Rack travel in mm : 5.9...6.1

Del. quantity cm³/ : 1.2...1.6

100 s: (1.0...1.8)

Spread cm³ : 0.4

100 s: (0.7)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 4.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1150

Del. quantity : 86.5...87.5

1000 : (84.5...89.5)

Spread cm³ : 3.00

1000 : (7.00)

RATED SPEED

1st version

Control lever
position degrees: 95...103

Testing:
1st rack travel in: 10.30
Speed rpm : 1190...1200
2nd rack travel in: 4.00
Speed rpm : 1255...1285
4th rack travel in: 1450
Speed rpm : 0.30...1.70

LOW IDLE 1
Control lever
position degrees: 70...78
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 5.5

Testing:
Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 350
Rack travel in mm : 5.90...6.10
Rack travel in mm : 2.00
Speed rpm : 575...635

TORQUE CONTROL
Torque control curve - 1st version
1st speed rpm : 1150
Rack travel in m: 11.30...11.40
2nd speed rpm : 500
Rack travel in m: 11.90...12.10
4th speed rpm : 800
Rack travel in m: 11.60...11.80

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 500
Del.quantity cm³/ : 84.0...87.0
1000 s: (82.0...89.0)
Speed rpm : 800
Del.quantity cm³/ : 85.5...88.5
1000 s: (83.5...90.5)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 10.30
Speed rpm : 1190...1200

STARTING FUEL DELIVERY

Speed rpm : 100
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.90...6.10
Del.quantity cm³/ : 12.5...16.5
1000 s: (10.5...18.5)
Spread cm³ : 4.50
1000 s: (7.00)

Remarks: : VALMET

APPLICATION

Tractor (tractor engines)

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 15.06.93
 Replaces : -
 Test oil : ISO-4113

 Combination no. : 9 400 085 327

 Injection pump
 Pump designation : PES6A95D410RS2772
 EP type number : 9 400 084 018
 Governor
 Governor design. : RSV350...1250A0C1150
 -4L
 Governor no. : 9 420 083 255

 Customer-spec. information
 Customer : MERCEDES-BENZ

 Engine : OM 366 A

 1st version kW : 121.0
 Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

 Overflow valve
 : 1 419 992 198

 Inlet press., bar : 1.50

 Test nozzle holder
 assembly : 0 681 343 009

 Opening
 pressure, bar : 172...175

 Test lines : 1 680 750 015

 Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

 Prestroke mm : 3.20...3.30
 : (3.15...3.35)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1250

 Rack travel in mm : 9.60...9.70

 Del. quantity cm³/ : 8.1...8.3
 100 s : (7.9...8.5)

 Spread cm³ : 0.3
 100 s : (0.8)

 2nd speed rpm : 350.0
 Rack travel in mm : 6.7...6.9
 Del. quantity cm³/ : 1.3...1.7
 100 s : (1.0...2.0)
 Spread cm³ : 0.5
 100 s : (0.9)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...1.00

Governor spring pre-tension
 Click setting x : 3.25

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1250
 Del. quantity : 81.0...83.0
 1000 : (79.0...85.0)
 Spread cm³ : 3.50
 1000 : (8.00)

RATED SPEED

1st version
 Control lever
 position degrees: 99...107

Testing:
 1st rack travel in: 8.60
 Speed rpm : 1290...1300
 2nd rack travel in: 4.00
 Speed rpm : 1325...1355
 4th rack travel in: 1500

Speed rpm : 0.30...1.70

Remarks:

LOW IDLE 1

Control Lever

position degrees: 71...79

Setting point w/out bumper spring

Speed rpm : 350

Rack travel in mm : 6.3

APPLICATION

Combine-harvester

Testing:

Speed rpm : 100

Minimum rack trave: 19.00

Speed rpm : 350

Rack travel in mm : 6.70...6.90

Rack travel in mm : 2.00

Speed rpm : 420...480

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1250

Rack travel in m: 9.60...9.70

2nd speed rpm : 500

Rack travel in m: 9.60...9.80

5th speed rpm : 400

Rack travel in m: 10.80...11.40

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 800

Del.quantity cm3/ : 72.0...76.0

1000 s: (70.0...78.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8.60

Speed rpm : 1290...1300

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/ : 95.0...115.0

1000 s: (92.0...118.0)

Rack travel in mm : 13.90...14.10

LOW IDLE

Speed rpm : 350

Rack travel in mm : 6.70...6.90

Del.quantity cm3/ : 13.0...17.0

1000 s: (10.0...20.0)

Spread cm3 : 5.50

1000 s: (9.00)

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM
 Edition : 21.04.93
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 9 400 085 354
 Injection pump
 Pump designation : PES6A100D320/3RS2691
 -2
 EP type number : 9 410 230 028
 Governor
 Governor design. : RQV350...1100AB1271R
 Governor no. : 9 420 080 343

Customer-spec. information
 Customer : CUMMINS

Engine : 6 CTA - 8.3 L

1st version kW : 180.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90
 : (2.75...2.95)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 9.00...12.00
 & maximum rack tra: 21.00
 Difference ° CS : 3.00...4.00

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 13.70...13.80

Del. quantity cm³/ : 12.9...13.1

100 s: (12.7...13.3)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 5.9...6.1

Del. quantity cm³/ : 1.3...1.7

100 s: (1.0...1.9)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1100

travel mm : 7.70...7.90

2nd speed rpm : 350

travel mm : 1.20...1.60

3rd speed rpm : 600

travel mm : 3.90...4.50

4th speed rpm : 1150

travel mm : 8.00...8.60

5th speed rpm : 1290

travel mm : 9.50...10.10

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1160

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1100
Aneroid pressure h: 900
Del.quantity : 129.0...131.0
1000 : (127.0...133.0)
Spread cm³ : 3.50
1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 113...121

Testing:
1st rack travel in: 12.70
Speed rpm : 1140...1150
2nd rack travel in: 4.00
Speed rpm : 1265...1295
4th rack travel in: 1450
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 66...74

Testing:
Speed rpm : 100
Minimum rack travel: 9.50
Speed rpm : 350
Rack travel in mm : 5.90...6.10

CONSTANT REGULATION
Speed rpm : 375...525

TORQUE CONTROL
Dimension a mm : 0.80
Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 13.70...13.80
2nd speed rpm : 750
Rack travel in m: 14.50...14.60
3rd speed rpm : 850
Rack travel in m: 14.20...14.40
4th speed rpm : 950
Rack travel in m: 13.90...14.10

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 14.50...14.60

Measurement
Speed 1/min : 500

E20

1st pressure hPa : -
Rack travel in m: 11.30...11.50
2nd pressure hPa : 400
Rack travel in m: 12.00...12.20
3rd pressure hPa : 580
Rack travel in m: 13.50...13.80

START CUT-OUT

Speed 1/min : 270 (290)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 900
Speed rpm : 750
Del.quantity cm³/ : 142.5...145.5
1000 s: (140.0...148.0)
Aneroid pressure h: 900
Speed rpm : 850
Del.quantity cm³/ : 139.5...142.5
1000 s: (137.0...145.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 82.5...84.5
1000 s: (80.5...86.5)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 12.70
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 165.0...179.0
1000 s: (161.0...183.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.90...6.10
Del.quantity cm³/ : 13.0...17.0
1000 s: (10.5...19.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:
: C.D.C. # 3355290

Start-of-delivery mark 11° cam angle
after start of delivery cyl. 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM
 Edition : 21.04.93
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 9 400 085 355
 Injection pump
 Pump designation : PES6A100D12ORS2841
 EP type number : 9 400 084 033
 Governor
 Governor design. : RQV350...1400AB1272R
 Governor no. : 9 420 080 344

Customer-spec. information
 Customer : CUMMINS

Engine : 6 BT 140

1st version kW : 105.0
 Rated speed : 2800

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.85...2.95
 : (2.80...3.00)
 Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 9.00...12.00
 & maximum rack tra: 21.00
 Difference ° CS : 3.00...4.00

BASIC SETTING

1st speed rpm : 1400

Rack travel in mm : 8.80...8.90

Del. quantity cm³/ : 8.0...8.2

100 s: (7.8...8.4)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 4.8...5.0

Del. quantity cm³/ : 0.5...0.9

100 s: (0.3...1.1)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1400
 travel mm : 6.40...6.60

2nd speed rpm : 350
 travel mm : 1.70...2.20

3rd speed rpm : 600
 travel mm : 3.70...4.20

4th speed rpm : 1000
 travel mm : 4.70...5.20

5th speed rpm : 1650
 travel mm : 7.50...8.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1400
 Del. quantity : 80.0...82.0

1000 : (78.0...84.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 102...110

Testing:
1st rack travel in: 7.80
Speed rpm : 1465...1480
2nd rack travel in: 4.00
Speed rpm : 1620...1650

LOW IDLE 1
Control lever
position degrees: 67...75

Testing:
Speed rpm : 100
Minimum rack trave: 9.00
Speed rpm : 350
Rack travel in mm : 4.80...5.00

CONSTANT REGULATION
Speed rpm : 350...550

START CUT-OUT

Speed 1/min : 270 (290)

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 800
Del.quantity cm³/ : 81.5...84.5
1000 s: (79.0...87.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 7.80
Speed rpm : 1465...1480

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 166.0...180.0
1000 s: (163.0...183.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 4.80...5.00

Del.quantity cm³/ : 5.0...9.0
1000 s: (3.0...11.0)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:
: C.D.C # 3355313
Start-of-delivery mark 9.5° cam angle
after start of delivery cyl. 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 15.06.93
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 9 400 085 360
 Injection pump
 Pump designation : PES4A95D410RS2843
 EP type number : 9 400 084 034
 Governor
 Governor design. : RQV300...1400AB1273L
 Governor no. : 9 420 080 346

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM 364

1st version kW : 66.0
 Rated speed : 2800

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 419 992 198
 Inlet press., bar : 1.50
 Test nozzle holder
 assembly : 0 681 343 009
 Opening
 pressure, bar : 172...175
 Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 3.20...3.30
 : (3.15...3.35)
 Rack travel in mm : 9.00...12.00

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1400

Rack travel in mm : 9.70...9.80

Del.quantity cm³/ : 6.9...7.1

100 s : (6.7...7.3)

Spread cm³ : 0.3

100 s : (0.8)

2nd speed rpm : 300.0

Rack travel in mm : 6.4...6.6

Del.quantity cm³/ : 0.7...1.1

100 s : (0.5...1.4)

Spread cm³ : 0.5

100 s : (0.9)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1400
 travel mm : 8.10...8.30

2nd speed rpm : 300
 travel mm : 0.80...1.30

3rd speed rpm : 700
 travel mm : 3.90...4.40

4th speed rpm : 1100
 travel mm : 5.80...6.30

5th speed rpm : 1550
 travel mm : 9.30...9.80

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1

Speed rpm : 1445

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1400

Del.quantity : 69.5...71.5

1000 : (67.5...73.5)

Spread cm³ : 3.50

1000 : (8.00)

RATED SPEED

1st version
Control lever
position degrees: 108...116

Testing:
1st rack travel in: 8.70
Speed rpm : 1445...1455
2nd rack travel in: 4.00
Speed rpm : 1520...1550
4th rack travel in: 1680
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 66...74

Testing:
Speed rpm : 100
Minimum rack trave: 8.00
Speed rpm : 300
Rack travel in mm : 6.40...6.60

CONSTANT REGULATION
Speed rpm : 450...550

START CUT-OUT

Speed 1/min : 250 (270)

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 700
Del.quantity cm³/ : 59.0...63.0
1000 s: (57.0...65.0)
Spread cm³ : 5.00
1000 s: (8.00)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 8.70
Speed rpm : 1445...1455

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 81.0...96.0
1000 s: (78.5...98.5)
Rack travel in mm : 13.80...14.00

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : SCA 11,1 i
 Edition : 21.04.93
 Replaces : 10.90
 Test oil : ISO-4113
 Combination no. : 9 400 087 424
 Injection pump
 Pump designation : PE6P120A720RS7020
 EP type number : 0 412 626 828
 Governor
 Governor design. : RQV200...1000PA539-8
 Governor no. : 0 421 813 635

Customer-spec. information
 Customer : SAAB-SCANIA

Engine : DS 11 34

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.00...5.10
 : (4.95...5.15)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 12.90...13.00

Del.quantity cm³/ : 20.8...21.0

100 s: (20.5...21.3)

Spread cm³ : 0.6

100 s: (0.9)

2nd speed rpm : 225.0

Rack travel in mm : 4.6...5.0

Del.quantity cm³/ : 1.8...2.2

100 s: (-)

Spread cm³ : 0.3

100 s: (0.6)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 225

travel mm : 1.20...1.60

2nd speed rpm : 350

travel mm : 2.40...3.00

3rd speed rpm : 650

travel mm : 4.50...5.10

4th speed rpm : 1045

travel mm : 8.40...8.60

5th speed rpm : 1150

travel mm : 9.80...10.20

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1050

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Aneroid pressure h: 900

Del.quantity : 208.0...210.0

1000 : (205.0...213.0)

Spread cm³ : 6.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 113...121

Testing:
1st rack travel in: 11.90
Speed rpm : 1040...1050
2nd rack travel in: 4.00
Speed rpm : 1135...1165
4th rack travel in: 1250
Speed rpm : 0.00...1.00

LOW IDLE 1
Control Lever
position degrees: 61...69

Testing:
Speed rpm : 125
Minimum rack travel: 5.80
Speed rpm : 225
Rack travel in mm : 4.60...4.80
Rack travel in mm : 2.00
Speed rpm : 340...400

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 12.90...13.00

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.50...10.90
2nd pressure hPa : 520
Rack travel in m: 12.30...12.40
3rd pressure hPa : 320
Rack travel in m: 11.10...11.30

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 900
Speed rpm : 1000
Del.quantity cm³/ : 198.0...206.0
1000 s: (196.0...208.0)
Aneroid pressure h: -
Speed rpm : 500

Del.quantity cm³/ : 151.0...155.0
1000 s: (149.0...157.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11.90
Speed rpm : 1040...1050

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 275.0...325.0
1000 s: (-)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 225
Rack travel in mm : 4.60...4.80

Remarks:
Delivery-valve spring pre-tension
3.2...3.4 mm.
Permissible alteration of 3.0...3.5 mm

Because of flattening, set the spring
preload on new delivery-valve holders
to 2.9...3.1 mm.

Start-of-delivery setting with ROBO
diaphragm.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : FOR 7,8 o
 Edition : 15.06.93
 Replaces : 10.90
 Test oil : ISO-4113
 Combination no. : 9 400 087 444
 Injection pump
 Pump designation : PES6P110A720RS3268
 EP type number : 9 400 087 073
 Governor
 Governor design. : RSV650...1250P8A530
 -2
 Governor no. : 9 420 082 327

Customer-spec. information
 Customer : FNH-IVECO

Engine : 7.8 l

1st version kW : 190.0
 Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 9 401 087 403
 Inlet press., bar : 1.50
 Test nozzle holder
 assembly : 1 688 901 017
 Opening
 pressure, bar : 207...210
 Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 015

Outside diameter
 x wall thickness
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 4.25...4.35
 : (4.20...4.40)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 9.00...12.00
 & maximum rack tra: 21.00
 Difference ° CS : 2.00...3.00

BASIC SETTING

1st speed rpm : 1200
 Rack travel in mm : 11.10...11.20
 Del.quantity cm³/ : 16.2...16.4
 100 s: (16.0...16.6)
 Spread cm³ : 0.5
 100 s: (0.9)
 2nd speed rpm : 650.0
 Rack travel in mm : 5.2...5.4
 Del.quantity cm³/ : 2.2...2.6
 100 s: (2.0...2.9)
 Spread cm³ : 0.3
 100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...1.00

Governor spring pre-tension
 Click setting x : 3.25

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1200
 Aneroid pressure h: 1000
 Del.quantity : 162.0...164.0
 1000 : (160.0...166.0)
 Spread cm³ : 5.00
 1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 98...106

Testing:

1st rack travel in: 10.10
Speed rpm : 1260...1270
2nd rack travel in: 4.00
Speed rpm : 1295...1315
3rd rack travel in: 4.00
Speed rpm : 1310...1330
4th rack travel in: 1400
Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever
position degrees: 73...81
Setting point w/out bumper spring
Speed rpm : 650
Rack travel in mm : 4.8
Speed rpm : 650
Rack travel in mm : 5.20...5.40
Rack travel in mm : 2.00
Speed rpm : 660...720

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 1200
Pressure hPa : 1000
Rack travel mm : 11.10...11.20

Measurement

Speed 1/min : 1200
1st pressure hPa : -
Rack travel in m: 8.00...8.20
2nd pressure hPa : 400
Rack travel in m: 8.60...8.70
3rd pressure hPa : 600
Rack travel in m: 10.70...11.00

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 67.5...69.5
1000 s: (65.5...71.5)

BREAKAWAY

1st version

F01

1mm rack travel less than

full load rack tr: 10.10
Speed rpm : 1260...1270

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 140.0...170.0
1000 s: (136.0...174.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 650
Rack travel in mm : 5.20...5.40
Del.quantity cm3/ : 22.5...26.5
1000 s: (20.0...29.0)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

APPLICATION

Combine-harvester

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 u 1
 Edition : 15.06.93
 Replaces : 10.91
 Test oil : ISO-4113
 Combination no. : 9 400 087 449
 Injection pump
 Pump designation : PES6P120A320/3RS3264
 EP type number : 9 400 087 075
 Governor
 Governor design. : RQV350...1100PA973
 Governor no. : 9 420 080 293

Customer-spec. information
 Customer : CUMMINS

Engine : 6 CTA - 8.3 L

1st version kw : 216.6
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve
 : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.45...3.55
 : (3.40...3.60)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 11.50...11.60

Del.quantity cm³/ : 19.9...20.1

100 s: (19.6...20.4)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 350.0

Rack travel in mm : 5.9...6.1

Del.quantity cm³/ : 0.5...1.1

100 s: (0.3...1.3)

Spread cm³ : 0.5

100 s: (0.8)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1150

travel mm : 7.00...7.10

2nd speed rpm : 350

travel mm : 1.40...1.80

3rd speed rpm : 650

travel mm : 4.30...4.70

4th speed rpm : 1400

travel mm : 8.80...9.20

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1325

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Aneroid pressure h: 1200

Del.quantity : 199.0...201.0

1000 : (196.0...204.0)

Spread cm3 : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 106...114

Testing:

1st rack travel in: 10.50
Speed rpm : 1160...1170
2nd rack travel in: 4.00
Speed rpm : 1330...1360
4th rack travel in: 1500
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 66...74

Testing:

Speed rpm : 100
Minimum rack travel: 8.00
Speed rpm : 350
Rack travel in mm : 5.90...6.10

CONSTANT REGULATION

Speed rpm : 425...575

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 1200
Rack travel mm : 11.50...11.60

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 8.90...9.10
2nd pressure hPa : 480
Rack travel in m: 9.60...9.70
3rd pressure hPa : 800
Rack travel in m: 10.70...11.00

START CUT-OUT

Speed 1/min : 290 (310)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200
Speed rpm : 700

Del.quantity cm3/ : 204.0...208.0
1000 s: (200.5...211.5)
Spread cm3 : 6.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 116.0...119.0
1000 s: (114.0...121.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 10.50
Speed rpm : 1160...1170

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 260.0...290.0
1000 s: (256.0...294.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.90...6.10
Del.quantity cm3/ : 5.0...11.0
1000 s: (3.0...13.0)
Spread cm3 : 5.00
1000 s: (8.00)

Remarks:

:
Start-of-delivery mark is at 8° after
start of delivery.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 u 3
 Edition : 15.06.93
 Replaces : 10.91
 Test oil : ISO-4113
 Combination no. : 9 400 087 463
 Injection pump
 Pump designation : PES6P120A320/3RS3264
 EP type number : 9 400 087 075
 Governor
 Governor design. : RQV350...11DOPA973-1
 Governor no. : 9 420 080 317

Customer-spec. information
 Customer : CUMMINS

Engine : 6 CTAA - 8.3 l

1st version kW : 186.4
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 025
 Inlet press., bar : 1.50
 Test nozzle holder
 assembly : 1 688 901 019
 Opening
 pressure, bar : 207...210
 Orifice plate
 diameter mm : 0,8
 Test lines : 1 680 750 015
 Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 3.45...3.55
 : (3.40...3.60)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)
 Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100
 Rack travel in mm : 10.40...10.50
 Del.quantity cm³/ : 17.1...17.3
 100 s : (16.8...17.6)
 Spread cm³ : 0.5
 100 s : (0.9)

2nd speed rpm : 350.0
 Rack travel in mm : 5.9...6.1
 Del.quantity cm³/ : 0.5...1.1
 100 s : (0.3...1.3)
 Spread cm³ : 0.5
 100 s : (0.8)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1150
 travel mm : 7.00...7.10
 2nd speed rpm : 350
 travel mm : 1.40...1.80
 3rd speed rpm : 650
 travel mm : 4.30...4.70
 4th speed rpm : 1400
 travel mm : 8.80...9.20

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 1325
 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1100
 Aneroid pressure h: 900
 Del.quantity : 171.0...173.0
 1000 : (168.0...176.0)

Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 105...113

Testing:

1st rack travel in: 9.40
Speed rpm : 1160...1170
2nd rack travel in: 4.00
Speed rpm : 1305...1335
4th rack travel in: 1500
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 66...74

Testing:

Speed rpm : 100
Minimum rack travel: 8.00
Speed rpm : 350
Rack travel in mm : 5.90...6.10

CONSTANT REGULATION

Speed rpm : 425...575

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 10.40...10.50

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.00...9.20
2nd pressure hPa : 490
Rack travel in m: 9.40...9.50
3rd pressure hPa : 660
Rack travel in m: 10.00...10.30

START CUT-OUT

Speed 1/min : 290 (310)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900
Speed rpm : 700

F05

Del. quantity cm³/ : 166.0...170.0
1000 s: (162.5...173.5)
Spread cm³ : 6.00
1000 s: (12.0)

Aneroid pressure h: -
Speed rpm : 500
Del. quantity cm³/ : 118.0...121.0
1000 s: (116.0...123.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 9.40
Speed rpm : 1160...1170

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 260.0...290.0
1000 s: (256.0...294.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.90...6.10
Del. quantity cm³/ : 5.0...11.0
1000 s: (3.0...13.0)
Spread cm³ : 5.00
1000 s: (8.00)

Remarks:

:
Start-of-delivery mark is at 8° after
start of delivery.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 21.04.93
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 9 400 087 477
 Injection pump
 Pump designation : PES6P120A72ORS3256-2
 EP type number : 9 400 087 080
 Governor
 Governor design. : RQV300...1300PA1057
 Governor no. : 9 420 080 338

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM 366 LA

1st version kw : 125.1
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter
 x Wall thickness
 x Length mm : 8.00X2.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27
 Prestroke mm : 3.00...3.10
 : (2.95...3.15)
 Rack travel in mm : 20.00...21.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)
 Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1000
 Rack travel in mm : 4.80...5.40
 Del.quantity cm3/ : 1.7...2.0
 100 s : (1.4...2.3)
 Spread cm3 : 0.2
 100 s : (0.3)

2nd speed rpm : 300.0
 Rack travel in mm : 7.2...7.5
 Del.quantity cm3/ : 1.0...1.6
 100 s : (0.7...1.9)
 Spread cm3 : 0.8
 100 s : (1.2)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300
 travel mm : 0.80...1.30
 2nd speed rpm : 660
 travel mm : 3.80...4.30
 3rd speed rpm : 960
 travel mm : 5.20...5.70
 4th speed rpm : 1357
 travel mm : 8.00...8.50
 5th speed rpm : 1492
 travel mm : 9.80...10.30

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 1385
 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1000
Del.quantity : 17.0...20.0
1000 : (14.0...23.0)
Spread cm³ : 2.00
1000 : (3.00)

RATED SPEED

1st version
Control lever
position degrees: 106...114

Testing:

1st rack travel in: 9.60
Speed rpm : 1340...1350
2nd rack travel in: 4.00
Speed rpm : 1415...1445
4th rack travel in: 1550
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 73...81

Testing:

Speed rpm : 100
Minimum rack travel: 9.00
Speed rpm : 300
Rack travel in mm : 7.30...7.50

CONSTANT REGULATION

Speed rpm : 300...450

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 1200
Rack travel mm : 10.70...10.90

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.80...10.10
2nd pressure hPa : 350
Rack travel in m: 10.10...10.30
3rd pressure hPa : 420
Rack travel in m: 10.40...10.60

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

FO7

1st version
Aneroid pressure h: 1200
Speed rpm : 1300
Del.quantity cm³/ : 140.0...142.0
1000 s: (137.0...145.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: 1200
Speed rpm : 800
Del.quantity cm³/ : 115.0...119.0
1000 s: (112.0...122.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 63.0...65.0
1000 s: (60.0...68.0)
Spread cm³ : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 9.60
Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 90.0...110.0
1000 s: (86.0...114.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 7.20...7.50
Del.quantity cm³/ : 10.0...16.0
1000 s: (7.0...19.0)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks:

Start-of-delivery blocking at 4.05 mm
after cyl. 1 start-of-delivery

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 a61
 Edition : 21.04.93
 Replaces : 02.91
 Test oil : ISO-4113

Combination no. : 9 400 230 110

Injection pump
 Pump designation : PES6A100D320/3RS2691
 -4

EP type number : 9 410 230 030
 Governor
 Governor design. : RSV450...1100AOC2190
 -42R

Governer no. : 0 420 233 248

Customer-spec. information
 Customer : C.D.C.

Engine : 6CT830

1st version kW : 150.6
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

F08

Test pressure, bar: 27...29

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Phasing :
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 12.10...12.20

Del.quantity cm³/ : 12.0...12.2

100 s: (11.8...12.4)

Spread cm³ : 0.4

100 s: (0.6)

2nd speed rpm : 450.0
 Rack travel in mm : 5.7...5.9
 Del.quantity cm³/ : 1.4...1.8
 100 s: (1.2...2.0)

Spread cm³ : 0.6
 100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...0.70

Governor spring pre-tension
 Click setting x : 4.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1100
 Del.quantity : 120.0...122.0
 1000 : (118.0...124.0)
 Spread cm³ : 4.00
 1000 : (6.50)

RATED SPEED

1st version
 Control lever
 position degrees: 46...54

Testing:

1st rack travel in: 11.10
Speed rpm : 1155...1165
2nd rack travel in: 4.00
Speed rpm : 1245...1255
3rd rack travel in: 4.00
Speed rpm : 1240...1270
4th rack travel in: 1300
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 22...30
Setting point w/out bumper spring
Speed rpm : 450
Rack travel in mm : 5.3

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 450
Rack travel in mm : 5.70...5.90

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 12.10...12.20
2nd speed rpm : 750
Rack travel in m: 13.20...13.40

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750
Del.quantity cm³/ : 134.0...138.0
1000 s: (132.0...140.0)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 11.10
Speed rpm : 1155...1165

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 145.0...165.0
1000 s: (140.0...170.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 450
Rack travel in mm : 5.70...5.90

Del.quantity cm³/ : 14.5...18.5
1000 s: (12.5...20.5)
Spread cm³ : 6.00
1000 s: (8.00)

Remarks:

: C.D.C. # 3915685
Adjustment without torque-control
spring retainer with 1 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

Start-of-delivery mark 11° cam angle
after start of delivery cyl. ?

Limit shutoff stop screw to 1.0 mm.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MWM
Edition : 15.06.93
Replaces : -
Test oil : ISO-4113
Combination no. : 9 407 083 263
Injection pump
Pump designation : PES6A90D320RS2605
EP type number : 9 400 083 078
Governor
Governor design. : RSV325...900A1C2132R
Governor no. : 9 420 083 280

Customer-spec. information
Customer : MWM

Engine : TD 229-6

1st version kW : 89.7
Rated speed : 1800

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 003

Outside diameter
x Wall thickness
x Length mm : 6.00x2.00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.20...2.30
: (2.15...2.35)
Rack travel in mm : 9.00...12.00

F10

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 9.00...12.00
& maximum rack tra: 21.00
Difference ° CS : 4.00...5.00

BASIC SETTING

1st speed rpm : 900

Rack travel in mm : 10.20...10.30

Del. quantity cm³/ : 7.3...7.4

100 s : (7.1...7.6)

Spread cm³ : 0.3

100 s : (0.7)

2nd speed rpm : 325.0

Rack travel in mm : 6.9...7.1

Del. quantity cm³/ : 1.3...1.7

100 s : (1.1...1.9)

Spread cm³ : 0.4

100 s : (0.7)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 4.25

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 900

Del. quantity : 73.0...74.0

1000 : (71.0...76.0)

Spread cm³ : 3.00

1000 : (7.00)

RATED SPEED

1st version

Control Lever

position degrees: 93...101

Testing:
1st rack travel in: 9.20
Speed rpm : 923...928
2nd rack travel in: 4.00
Speed rpm : 954...967
4th rack travel in: 1050
Speed rpm : 0.30...1.70

LOW IDLE 1
Control lever
position degrees: 70...78
Setting point w/out bumper spring
Speed rpm : 325
Rack travel in mm : 6.5

Testing:
Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 325
Rack travel in mm : 6.90...7.10
Rack travel in mm : 2.00
Speed rpm : 365...425

TORQUE CONTROL
Torque control curve - 1st version
1st speed rpm : 900
Rack travel in m: 10.20...10.30
2nd speed rpm : 500
Rack travel in m: 10.20...10.40
5th speed rpm : 375
Rack travel in m: 11.00...11.60

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 9.20
Speed rpm : 923...928

STARTING FUEL DELIVERY

Speed rpm : 100
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 325
Rack travel in mm : 6.90...7.10
Del.quantity cm3/ : 13.5...17.5
1000 s: (11.5...19.5)
Spread cm3 : 4.50
1000 s: (7.00)

Remarks:

:

APPLICATION

Generator

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CDC
Edition : 29.06.93
replaces : 01.85
Calibrating oil : ISO-4113

Injection pump : VE4/12F1250R123-10
Type number : 0 460 424 019
Customer Part-No. :

Customer-specific information
Customer : CUMMINS

Engine : 4BTA 3.9

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 016

Opening
Pressure bar: 207.00...210.00

Perforated-plate
diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Start of delivery
Prestroke mm: 0.3
(from BDC): $\pm 0.02(0.04)$

Start of delivery block
Piston stroke mm: 1.7
mm: $\pm 0.02(0.06)$

Outlet : A

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 850
Setting value mm: 3.70...4.10
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 850
Setting value bar: 5.90...6.50
Shutoff
electromagnet Volt: 12

Full-load del. w/out charge press.:

Speed 1/min: 1100
Del. quantity cm³/
1000S.: 90.50...91.50

Shutoff
electromagnet Volt: 12
Dispersion cm³/: 4.0
1000S.: (4.5)

Low-idle speed regulation

Speed 1/min: 375
Del. quantity cm³/
1000S.: 22.00...28.00

Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 5.5
1000S.: (7.0)

Full-load speed regulation

Speed 1/min: 1340
Del. quantity cm³/
1000S.: 28.00...34.00

Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm³/: 105.00...145.00
mind 1000S.: 105.0
Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1100
TD travel mm: 4.60...5.40
mm: (4.30...5.70)

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 850

TD travel mm: 3.70...4.10
mm: (3.20...4.60)

Shutoff
electromagnet Volt: 12
4th speed 1/min: 500
TD travel mm: 1.80...2.60
mm: (1.50...2.90)

Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 500
Supply-pump
pressure bar: 4.30...4.90

Shutoff
electromagnet Volt: 12
2nd speed 1/min: 850
Supply-pump
pressure bar: 5.90...6.50

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1100
Supply-pump
pressure bar: 6.70...7.30

Shutoff
electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 500
Shutoff
electromagnet Volt: 12
Overflow : 41.70...83.40
quantity cm³/10s: (26.70...98.40)

2nd speed 1/min: 1250
Shutoff
electromagnet Volt: 12
Overflow : 55.60...139.00
quantity cm³/10s: (40.60...154.00)

Delivery-quant. and breakaway char.:

2nd speed 1/min: 1400
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

5th speed 1/min: 1340
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 28.00...34.00
1000S.: (25.00...37.00)

8th speed 1/min: 1290
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 69.00...75.00
1000S.: (66.00...78.00)

9th speed 1/min: 1250

F13

Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 84.50...87.50
1000S.: (83.00...89.00)

12th speed 1/min: 1100
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 90.50...91.50
1000S.: (88.0...94.0)

15th speed 1/min: 850
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 94.50...98.50
1000S.: (93.00...100.00)

20th speed 1/min: 500
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 82.00...90.00
1000S.: (80.00...92.00)

Mech. shutoff:
Mech. Abst.ellung:

1st speed 1/min: 1250
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: 12

Electr. shutoff:

1st speed 1/min: 375
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: -

Idle delivery:

1st speed 1/min: 375
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 22.00...28.00
1000S.: (20.00...30.00)

Dispersion cm³/: 5.5
1000S.: (7.0)

2nd speed 1/min: 450
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...2.00
1000S.: (0.00...2.00)

5th speed 1/min: 300
Shutoff
electromagnet Volt: -
Del. quantity cm³/: 45.00...53.00
1000S.: (43.00...55.00)

Automatic starting fuel delivery:

1st speed 1/min: 130

Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 105.00...145.00
1000S.: (105.00...145.00)

2nd speed 1/min: 250
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 65.00...105.00
1000S.: (65.00...105.00)

4th speed 1/min: 100
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 105.00...145.00
1000S.: (105.00...145.00)

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K	mm: -
KF	mm: 5.0...5.4
MS1	mm: 1.3...1.5
Ya	mm: 35.8...37.8
Yb	mm: 44.1...49.7

Remarks:
: CDC # 390 6316
:

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CDC
Edition : 29.06.93
replaces : -
Calibrating oil : ISO-4113

Injection pump : VE4/12F1250R424
Type number : 0 460 424 079
Customer Part-No. :

Customer-specific information
Customer : CDC

Engine : 4 BTAA 3.9

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 109

Opening
Pressure bar: 207.00...210.00

Perforated-plate
diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Start of delivery
Prestroke mm: -
(from BDC): -

Start of delivery block
Piston stroke mm: 1.25
mm: $\pm 0.02(0.06)$

Outlet : A

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 850
Charge press. hPa: 1000
Setting value mm: 1.00...1.40
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1100
Charge press hPa: 1000
Setting value bar: 6.90...7.50
Shutoff
electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 850
Charge press. hPa: 1000
Del. quantity cm³/
1000S.: 84.50...85.50

Shutoff
electromagnet Volt: 12
Dispersion cm³/: 5.0
1000S.: (5.0)

Full-load del. w/out charge press.:

Speed 1/min: 500
Del. quantity cm³/
1000S.: 52.50...53.50

Shutoff
electromagnet Volt: 12
Dispersion cm³/: 5.0
1000S.: (6.0)

Low-idle speed regulation

Speed 1/min: 400
Del. quantity cm³/
1000S.: 14.50...18.50

Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 5.5
1000S.: (7.0)

Full-load speed regulation

Speed 1/min: 1325
Charge press hPa: 1000
Del. quantity cm³/
1000S.: 72.00...78.00

Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm³/: 115.00...165.00
mind 1000S.: 115.0

Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1250
Charge press hPa: 1000
TD travel mm: 2.10...2.90
mm: (1.80...3.20)

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 850
Charge press hPa: 1000
TD travel mm: 1.00...1.40
mm: (0.50...1.90)

Shutoff
electromagnet Volt: 12
4th speed 1/min: 750
Charge press hPa: 1000
TD travel mm: 0.30...1.10

Shutoff
electromagnet Volt: 12
8th speed 1/min: 450
Charge press. hPa: -
TD travel mm: 2.00...3.00
mm: (1.80...3.20)

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 850
Charge press. hPa: 1000
Supply-pump
pressure bar: 5.50...6.10

Shutoff
electromagnet Volt: 12
2nd speed 1/min: 1100
Charge press. hPa: 1000
Supply-pump
pressure bar: 6.90...7.50

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1250
Charge press. hPa: 1000
Supply-pump
pressure bar: 7.50...8.10

Shutoff
electromagnet Volt: 12
4th speed 1/min: 500
Charge press. hPa: 1000
Supply-pump
pressure bar: 4.00...4.60

Shutoff
electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 500
Charge press. hPa: -
Shutoff
electromagnet Volt: 12
Overflow : 41.70...83.40
quantity cm³/10s: (26.70...98.40)
2nd speed 1/min: 1250
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Overflow : 55.60...139.00
quantity cm³/10s: (40.60...154.00)

Delivery-quant. and breakaway char.:

1rd speed 1/min: 700
Charge-air pressure-setting
point hPa: 300
LDA-stroke mm: 6.7
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 69.00...70.00
1000S.: (65.50...73.50)

2nd speed 1/min: 1500
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

3rd speed 1/min: 1440
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 15.00...45.00
1000S.: (15.00...45.00)

5th speed 1/min: 1325
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 72.00...78.00
1000S.: (69.00...81.00)

9th speed 1/min: 1250
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 84.00...89.00
1000S.: (82.50...90.50)

10th speed 1/min: 1100
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 85.00...90.00
1000S.: (83.50...91.50)

12th speed 1/min: 850
Charge press. hPa: 1000

Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 85.50...86.50
1000S.: (83.00...89.00)

18th speed 1/min: 500
Charge press. hPa: -
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 53.50...54.50
1000S.: (50.00...58.00)

Mech. shutoff:
Mech. Abst.ellung:

1st speed 1/min: 1250
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: 12

Electr. shutoff:

1st speed 1/min: 400
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: -

Idle delivery:

1st speed 1/min: 400
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 14.50...18.50
1000S.: (11.50...21.50)

Dispersion cm³/: 5.5
1000S.: (7.0)

2nd speed 1/min: 490
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Automatic starting fuel delivery:

1st speed 1/min: 130
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 140.00...190.00
1000S.: (140.00...190.00)

2nd speed 1/min: 240
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 40.00...70.00
1000S.: (40.00...70.00)

4th speed 1/min: 100
Shutoff
electromagnet Volt: 12

Del. quantity cm³/: 115.00...165.00
1000S.: (115.00...165.00)

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation
K mm: 3.4...3.6
KF mm: KOT
MS mm: 1.0...1.4
SVS max. mm: -
LDA stroke mm: 6.7
Ya mm: 34.8...38.8
Yb mm: 42.7...47.9

Remarks:

: C.D.C. # 391 3443
:

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CAS
 Edition : 29.06.93
 replaces : -
 Calibrating oil : ISO-4113
 Injection pump : VE4/12F1000R378-10
 Type number : 0 460 424 085
 Customer Part-No. :

Customer-specific information
 Customer : CASE

Engine : 4 T 390

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
 return temp. °C
 with thermometer : 40.00...48.00
 Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
 assembly : 1 688 901 027

Opening
 Pressure bar: 250.00...253.00

Perforated-plate
 diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
 x Wall thickness : 2.00
 x Length mm: 840

Start of delivery
 Prestroke mm: 0.3
 (from BDC): ±0.02(0.04)

Start of delivery block
 Piston stroke mm: 1.8
 mm: ±0.02(0.06)

Outlet : A

Injection-pump setting values
 Test specifications in parentheses

Timing-device travel

Speed 1/min: 900
 Setting value mm: 2.40...2.80
 Shutoff
 electromagnet Volt: 24

Supply-pump pressure

Speed 1/min: 900
 Setting value bar: 4.00...4.60
 Shutoff
 electromagnet Volt: 24

Full-load del. w/out charge press.:

Speed 1/min: 900
 Del. quantity cm³/
 1000S.: 59.0...70.0

Shutoff
 electromagnet Volt: 24
 Dispersion cm³/
 1000S.: (4.5)

Low-idle speed regulation

Speed 1/min: 450
 Del. quantity cm³/
 1000S.: 7.00...13.00

Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/
 1000S.: (7.0)

Full-load speed regulation

Speed 1/min: 1050
 Del. quantity cm³/
 1000S.: 37.50...43.50

Shutoff
 electromagnet Volt: 24

Start:

Speed 1/min: 100
 Del. quantity cm³/
 mind 1000S.: 80.00

Shutoff
 electromagnet Volt: 24

Inspection-pump test specifications
 Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1000
 TD travel mm: 2.70...3.50
 mm: (2.40...3.80)

Shutoff
 electromagnet Volt: 24
 3rd speed 1/min: 900

TD travel mm: 2.40...2.80
mm: (1.90...3.30)

Shutoff
electromagnet Volt: 24

4th speed 1/min: 750

TD travel mm: 1.30...2.10
mm: (1.00...2.40)

Shutoff
electromagnet Volt: 24

Supply-pump pressure characteristic:

1st speed 1/min: 500

Supply-pump
pressure bar: 2.20...2.80

Shutoff
electromagnet Volt: 24

2nd speed 1/min: 900

Supply-pump
pressure bar: 4.00...4.60

Shutoff
electromagnet Volt: 24

3rd speed 1/min: 1000

Supply-pump
pressure bar: 4.40...5.00

Shutoff
electromagnet Volt: 24

Overflow quantity at overflow valve:

1st speed 1/min: 500

Shutoff
electromagnet Volt: 24
Overflow : 41.70...83.40
quantity cm³/10s: (26.70...98.40)

2nd speed 1/min: 1000

Shutoff
electromagnet Volt: 24
Overflow : 55.60...139.00
quantity cm³/10s: (40.60...154.00)

Delivery-quant. and breakaway char.:

2nd speed 1/min: 1130

Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

3rd speed 1/min: 1070

Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 15.00...45.00
1000S.: (15.00...45.00)

5th speed 1/min: 1050

Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 37.50...43.50
1000S.: (34.50...46.50)

9th speed 1/min: 1000

Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 67.00...70.00
1000S.: (65.50...71.50)

10th speed 1/min: 750

Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 72.50...75.50
1000S.: (70.50...77.50)

12th speed 1/min: 900

Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 69.00...70.00
1000S.: (66.50...72.50)

20th speed 1/min: 500

Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 71.50...79.50
1000S.: (69.50...81.50)

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 450
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: -

Idle delivery:

1st speed 1/min: 450
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 7.00...13.00
1000S.: (5.00...15.00)

Dispersion cm³/: 5.5
1000S.: (7.0)

2nd speed 1/min: 500

Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 0.00...4.00
1000S.: (0.00...4.00)

Automatic starting fuel delivery:

1st speed 1/min: 130
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 95.00...135.00
1000S.: (95.00...135.00)

2nd speed 1/min: 240

Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 55.00...85.00
1000S.: (55.00...85.00)

4th speed 1/min: 100

Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 80.00...120.00
1000S.: (80.00...120.00)

Shutoff electromagnet:

Cut-in
min voltage : 20.0
Rated voltage : 24.0

Mounting and assembly dimensions:

Designation

K	mm: -
KF	mm: 5.2...5.6
MS	mm: 1.3...1.5
SVS max.	mm: 3.3
Ya	mm: 34.8...38.8
Yb	mm: 38.6...44.2

Remarks:

:
:

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM
Edition : 29.06.93
replaces : 20.10.89
Calibrating oil : ISO-4113
Injection pump : VE6/12F1325R367-1
Type number : 0 460 426 146
Customer Part-No. :

Customer-specific information
Customer : CDC

Engine : 6 BT 5.9 IND.

Power KW: 97
Speed 1/min: 2650

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 027

Opening
Pressure bar: 250.00...253.00

Perforated-plate
diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Start of delivery
Prestroke mm: 0.3
(from BDC): ±0.02(0.04)

Start of delivery block
Piston stroke mm: 1.5
mm: ±0.02(0.06)

Outlet : D

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 850
Setting value mm: 3.90...4.30
Shutoff
electromagnet Volt: 24

Supply-pump pressure

Speed 1/min: 850
Setting value bar: 3.90...4.50
Shutoff
electromagnet Volt: 24

Full-load del. w/out charge press.:

Speed 1/min: 1100
Del. quantity cm3/
1000S.: 56.0...57.0

Shutoff
electromagnet Volt: 24
Dispersion cm3/: 4.0
1000S.: (4.5)

Low-idle speed regulation

Speed 1/min: 375
Del. quantity cm3/
1000S.: 8.00...14.00

Shutoff
electromagnet Volt: 24
Del. quantity cm3/: 5.5
1000S.: (7.0)

Full-load speed regulation

Speed 1/min: 1400
Del. quantity cm3/
1000S.: 36.00...42.00

Shutoff
electromagnet Volt: 24

Start:

Speed 1/min: 100
Del. quantity cm3/: 60.00...110.00
mind 1000S.: 60.00
Shutoff
electromagnet Volt: 24

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1100
TD travel mm: 5.90...6.70
mm: (5.60...7.00)

Shutoff
electromagnet Volt: 24
3rd speed 1/min: 850
TD travel mm: 3.90...4.30
mm: (3.40...4.80)

Shutoff
electromagnet Volt: 24
4th speed 1/min: 500
TD travel mm: 1.30...2.10
mm: (1.00...2.40)

Shutoff
electromagnet Volt: 24

Supply-pump pressure characteristic:

1st speed 1/min: 500
Supply-pump pressure bar: 2.50...3.10

Shutoff
electromagnet Volt: 24
2nd speed 1/min: 850
Supply-pump pressure bar: 3.90...4.50

Shutoff
electromagnet Volt: 24
3rd speed 1/min: 1100
Supply-pump pressure bar: 4.90...5.50
Shutoff
electromagnet Volt: 24

Overflow quantity at overflow valve:

1st speed 1/min: 500
Shutoff
electromagnet Volt: 24
Overflow quantity cm³/10s: 41.70...83.40
(26.70...98.40)
2nd speed 1/min: 1325
Shutoff
electromagnet Volt: 24
Overflow quantity cm³/10s: 55.60...139.00
(40.60...154.00)

Delivery-quant. and breakaway char.:

2nd speed 1/min: 1520
Shutoff
electromagnet Volt: 24
Del. quantity cm³/1000s.: 0.00...3.00
(0.00...3.00)
3rd speed 1/min: 1440
Shutoff
electromagnet Volt: 24
Del. quantity cm³/1000s.: 15.00...45.00
(15.00...45.00)
5th speed 1/min: 1400
Shutoff
electromagnet Volt: 24

Del. quantity cm³/1000s.: 36.00...42.00
(33.00...45.00)
9th speed 1/min: 1325

Shutoff
electromagnet Volt: 24
Del. quantity cm³/1000s.: 52.50...55.50
(51.00...57.00)
12th speed 1/min: 1100

Shutoff
electromagnet Volt: 24
Del. quantity cm³/1000s.: 56.00...57.00
(53.50...59.50)
15th speed 1/min: 850

Shutoff
electromagnet Volt: 24
Del. quantity cm³/1000s.: 53.50...57.50
(51.50...59.50)
20th speed 1/min: 500

Shutoff
electromagnet Volt: 24
Del. quantity cm³/1000s.: 42.00...50.00
(40.00...52.00)

Mech. shutoff:
Mech. Abst.ellung:

1st speed 1/min: 1325
Del. quantity cm³/1000s.: 0.00...3.00
(0.00...3.00)

Shutoff
electromagnet volt: 24

Electr. shutoff:

1st speed 1/min: 375
Del. quantity cm³/1000s.: 0.00...3.00
(0.00...3.00)

Shutoff
electromagnet volt: -

Idle delivery:

1st speed 1/min: 375
Shutoff
electromagnet Volt: 24
Del. quantity cm³/1000s.: 8.00...14.00
(6.00...16.00)
Dispersion cm³/1000s.: 5.5
(7.0)

2nd speed 1/min: 455
Shutoff
electromagnet Volt: 24
Del. quantity cm³/1000s.: 0.00...4.00
(0.00...4.00)

Automatic starting fuel delivery:

1st speed 1/min: 130
Shutoff
electromagnet Volt: 24

Del. quantity cm³/: 65.00...115.00
1000S.: (65.00...115.00)

2nd speed 1/min: 250

Shutoff

electromagnet Volt: 24

Del. quantity cm³/: 15.00...65.00
1000S.: (15.00...65.00)

4th speed 1/min: 100

Shutoff

electromagnet Volt: 24

Del. quantity cm³/: 60.00...110.00
1000S.: (60.00...110.00)

Shutoff electromagnet:

Cut-in

min voltage : 20.0

Rated voltage : 24.0

Mounting and assembly dimensions:

Designation

K	mm: -
KF	mm: 5.0...5.4
MS	mm: 1.3...1.7
SVS max.	mm: 1.3
Ya	mm: 34.8...38.8
Yb	mm: 37.6...43.4

Remarks:

: C.D.C. # 391 6904
:

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM
Edition : 14.04.92
replaces : 29.06.93
Calibrating oil : ISO-4113
Injection pump : VE6/12F1100R402
Type number : 0 460 426 166
Customer Part-No. :

Customer-specific information
Customer : CDC

Engine : 6 BTA- 590 I

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 027

Opening
Pressure bar: 250.00...253.00

Perforated-plate
diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Start of delivery
Prestroke mm: 0.3
(from BDC): +-0.02(0.04)

Start of delivery block
Piston stroke mm: 1.5
mm: +-0.02(0.06)

Outlet : D

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

F24

Speed 1/min: 900
Charge press. hPa: 1000
Setting value mm: 4.80...5.20
Shutoff
electromagnet Volt: 24

Supply-pump pressure

Speed 1/min: 900
Charge press hPa: 1000
Setting value bar: 4.70...5.30
Shutoff
electromagnet Volt: 24

Full-load del. with charge press.:

Speed 1/min: 750
Charge press. hPa: 1000
Del. quantity cm3/
1000S.: 71.50...72.50

Shutoff
electromagnet Volt: 24
Dispersion cm3/
1000S.: (4.5)

Full-load del. w/out charge press.:

Speed 1/min: 700
Del. quantity cm3/
1000S.: 51.00...52.00

Shutoff
electromagnet Volt: 24

Low-idle speed regulation

Speed 1/min: 400
Del. quantity cm3/
1000S.: 7.00...13.00

Shutoff
electromagnet Volt: 24
Del. quantity cm3/
1000S.: (7.0)

Full-load speed regulation

Speed 1/min: 1180
Charge press hPa: 1000
Del. quantity cm3/
1000S.: 47.00...53.00

Shutoff
electromagnet Volt: 24

Start:

Speed 1/min: 100
Del. quantity cm3/
mind 1000S.: 65.00...115.00

Shutoff
electromagnet Volt: 24

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1100
Charge press hPa: 1000
TD travel mm: 6.20...7.00
mm: (5.90...7.30)

Shutoff
electromagnet Volt: 24
3rd speed 1/min: 900
Charge press hPa: 1000
TD travel mm: 4.80...5.20
mm: (4.30...5.70)

Shutoff
electromagnet Volt: 24
4th speed 1/min: 750
Charge press hPa: 1000
TD travel mm: 3.50...4.30
mm: (3.20...4.60)

Shutoff
electromagnet Volt: 24

Supply-pump pressure characteristic:

1st speed 1/min: 750
Charge press. hPa: 1000
Supply-pump
pressure bar: 4.00...4.60

Shutoff
electromagnet Volt: 24
2nd speed 1/min: 900
Charge press. hPa: 1000
Supply-pump
pressure bar: 4.70...5.30

Shutoff
electromagnet Volt: 24
3rd speed 1/min: 1100
Charge press. hPa: 1000
Supply-pump
pressure bar: 5.50...6.10

Shutoff
electromagnet Volt: 24

Overflow quantity at overflow valve:

1st speed 1/min: 750
Charge press. hPa: -
Shutoff
electromagnet Volt: 24
Overflow : 41.70...83.40
quantity cm³/10s: (26.70...98.40)

2nd speed 1/min: 1100
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Overflow : 55.60...139.00
quantity cm³/10s: (40.60...154.00)

F25

Delivery-quant. and breakaway char.:

1nd speed 1/min: 700
Charge-air pressure-setting
point hPa: 350
LDA-stroke mm: 5.0
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 64.50...65.50
1000s.: (61.00...69.00)

2nd speed 1/min: 1250
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 0.00...3.00
1000s.: (0.00...3.00)

3rd speed 1/min: 1200
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 15.00...45.00
1000s.: (15.00...45.00)

5th speed 1/min: 1180
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 47.00...53.00
1000s.: (44.00...56.00)

9th speed 1/min: 1100
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 59.50...62.50
1000s.: (58.00...64.00)

10th speed 1/min: 900
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 61.50...64.50
1000s.: (59.50...66.50)

12th speed 1/min: 750
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 71.50...72.50
1000s.: (69.00...75.00)

18th speed 1/min: 700
Charge press. hPa: -
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 51.00...52.00
1000s.: (47.50...55.50)

Mech. shutoff:
Mech. Abst. ellung:

1st speed 1/min: 1100
Charge press. hPa: 1000

Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)
Shutoff
electromagnet volt: 24

Electr. shutoff:

1st speed 1/min: 400
Charge press. hPa: -
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)
Shutoff
electromagnet volt: -

Idle delivery:

1st speed 1/min: 400
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 7.00...13.00
1000S.: (5.00...15.00)
Dispersion cm³/: 5.5
1000S.: (7.0)
2nd speed 1/min: 500
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 0.00...4.00
1000S.: (0.00...4.00)

Automatic starting fuel delivery:

1st speed 1/min: 250
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 70.00...120.00
1000S.: (70.00...120.00)

2nd speed 1/min: 450
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 10.00...50.00
1000S.: (10.00...50.00)

4th speed 1/min: 100
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 65.00...115.00
1000S.: (65.00...115.00)

Shutoff electromagnet:

Cut-in
min voltage : 20.0
Rated voltage : 24.0

Mounting and assembly dimensions:

Designation

K mm: -
KF mm: 5.0...5.4

F26

MS mm: 1.3...1.7
LDA stroke mm: 5.0
Ya mm: 34.8...38.8
Yb mm: 40.2...45.8

Remarks:

: CDC # 391 7562

:
Operate control lever after each
manifold-pressure compensator pressure
change.

* Correction at adjusting nut

Heavy-duty fuel-injection pump for
DI-engines: only test using timing-
device-travel measuring device with
metal jacket

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CDC
 Edition : 29.06.93
 replaces : -
 Calibrating oil : ISO-4113

 Injection pump : VE6/12F1250R498-1
 Type number : 0 460 426 212
 Customer Part-No. :

Customer-specific information
 Customer : CDC

Engine : 6 BTAA 5.9B

Power KW: 100
 Speed 1/min: 1250

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
 return temp. °C
 with thermometer : 40.00...48.00
 Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
 assembly : 1 688 901 109

Opening
 Pressure bar: 207.00...210.00

Perforated-plate
 diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
 x Wall thickness : 2.00
 x Length mm: 840

Start of delivery
 Prestroke mm: -
 (from BDC): -

Start of delivery block
 Piston stroke mm: 1.15
 mm: ±0.02(0.06)

Outlet : D

Injection-pump setting values

Test specifications in parentheses

Timing-device travel

Speed 1/min: 1000
 Charge press. hPa: 1000
 Setting value mm: 1.50...1.90
 Shutoff
 electromagnet Volt: 24

Supply-pump pressure

Speed 1/min: 1000
 Charge press hPa: 1000
 Setting value bar: 6.30...6.90
 Shutoff
 electromagnet Volt: 24

Full-load del. with charge press.:

Speed 1/min: 850
 Charge press. hPa: 1000
 Del. quantity cm³/
 1000S.: 71.50...72.50

Shutoff
 electromagnet Volt: 24
 Dispersion cm³/: 5.0
 1000S.: (5.0)

Full-load del. w/out charge press.:

Speed 1/min: 500
 Del. quantity cm³/
 1000S.: 59.50...60.50

Shutoff
 electromagnet Volt: 24
 Dispersion cm³/: 5.0
 1000S.: (6.0)

Low-idle speed regulation

Speed 1/min: 350
 Del. quantity cm³/
 1000S.: 11.00...15.00

Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/: 5.5
 1000S.: (7.0)

Full-load speed regulation

Speed 1/min: 1400
 Charge press hPa: 1000
 Del. quantity cm³/
 1000S.: 42.00...48.00

Shutoff
 electromagnet Volt: 24

Start:

Speed 1/min: 100
Del. quantity cm³/: 100.00...160.00
mind 1000S.: 100.0
Shutoff
electromagnet Volt: 24

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1250
Charge press hPa: 1000
TD travel mm: 2.10...2.90
mm: (1.80...3.20)

Shutoff
electromagnet Volt: 24
3rd speed 1/min: 1000
Charge press hPa: 1000
TD travel mm: 1.50...1.90
mm: (1.00...2.40)

Shutoff
electromagnet Volt: 24
7. Rotacao 1/min: 850
Charge press. hPa: 1000
TD travel mm: 0.50...1.30
mm: (0.20...1.60)

Shutoff
electromagnet Volt: 24
8th speed 1/min: 450
Charge press. hPa: -
TD travel mm: 2.00...3.00
mm: (1.80...3.20)

KSB/AFB
valve Volt: 24
Shutoff
electromagnet Volt: 24

Supply-pump pressure characteristic:

1st speed 1/min: 850
Charge press. hPa: 1000
Supply-pump
pressure bar: 5.70...6.30
Shutoff

electromagnet Volt: 24
2nd speed 1/min: 1000
Charge press. hPa: 1000
Supply-pump
pressure bar: 6.30...6.90
Shutoff

electromagnet Volt: 24
3rd speed 1/min: 1250
Charge press. hPa: 1000
Supply-pump
pressure bar: 7.20...7.80
Shutoff

electromagnet Volt: 24
4th speed 1/min: 500
Charge press. hPa: 1000

Supply-pump
pressure bar: 3.90...4.50
Shutoff
electromagnet Volt: 24

Overflow quantity at overflow valve:

1st speed 1/min: 500
Charge press. hPa: -
Shutoff
electromagnet Volt: 24
Overflow : 41.70...83.40
quantity cm³/10s: (26.70...98.40)

2nd speed 1/min: 1250
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Overflow : 55.60...139.00
quantity cm³/10s: (40.60...154.00)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 600
Charge-air pressure-setting
point hPa: 450
LDA-stroke mm: 4.0
Shutoff

electromagnet Volt: 24
Del. quantity cm³/: 68.00...69.00
1000S.: (64.50...72.50)
2nd speed 1/min: 1490
Charge press. hPa: 1000
Shutoff

electromagnet Volt: 24
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)
3rd speed 1/min: 1445
Charge press. hPa: 1000
Shutoff

electromagnet Volt: 24
Del. quantity cm³/: 15.00...45.00
1000S.: (15.00...45.00)
5th speed 1/min: 1400
Charge press. hPa: 1000
Shutoff

electromagnet Volt: 24
Del. quantity cm³/: 42.00...48.00
1000S.: (39.00...51.00)
9th speed 1/min: 1250
Charge press. hPa: 1000
Shutoff

electromagnet Volt: 24
Del. quantity cm³/: 73.00...77.00
1000S.: (72.00...78.00)
10th speed 1/min: 1100
Charge press. hPa: 1000
Shutoff

electromagnet Volt: 24

Del. quantity cm³/: 72.50...75.50
1000S.: (70.50...77.50)
12th speed 1/min: 850
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 71.50...72.50
1000S.: (69.00...75.00)
18th speed 1/min: 500
Charge press. hPa: -
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 59.50...60.50
1000S.: (56.00...64.00)

Mech. shutoff:
Mech. Abst.ellung:

1st speed 1/min: 1250
Charge press. hPa: 1000
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)
Shutoff
electromagnet volt: 24

Electr. shutoff:

1st speed 1/min: 350
Charge press. hPa: -
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)
Shutoff
electromagnet volt: -

Idle delivery:

1st speed 1/min: 350
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 11.00...15.00
1000S.: (8.00...18.00)
Dispersion cm³/: 5.5
1000S.: (7.0)
2nd speed 1/min: 400
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Automatic starting fuel delivery:

1st speed 1/min: 130
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 105.00...165.00
1000S.: (105.00...165.00)
2nd speed 1/min: 200
Shutoff
electromagnet Volt: 24

Del. quantity cm³/: 55.00...85.00
1000S.: (55.00...85.00)
4th speed 1/min: 100
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 100.00...160.00
1000S.: (100.00...160.00)

Shutoff electromagnet:

Cut-in
min voltage : 20.0
Rated voltage : 24.0

Mounting and assembly dimensions:

Designation
K mm: 3.6...3.8
KF mm: KOT
MS mm: -
SVS max. mm: 3.7
LDA stroke mm: 4.0
Ya mm: 34.8...38.8
Yb mm: 44.9...50.1

Remarks:

: CDC # 328 1848
:

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CDC
 Edition : 29.06.93
 replaces : -
 Calibrating oil : ISO-4113
 Injection pump : VE6/12F1250R373-7
 Type number : D 460 426 216
 Customer Part-No. :

Customer-specific information
 Customer : CDC

Engine : 6 BTA-590

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
 return temp. °C
 with thermometer : 40.00...48.00
 Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
 assembly : 1 688 901 027

Opening
 Pressure bar: 250.00...253.00

Perforated-plate
 diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
 x Wall thickness : 2.00
 x Length mm: 840

Start of delivery
 Prestroke mm: 0.3
 (from BDC): ±0.02(0.04)

Start of delivery block
 Piston stroke mm: 1.85
 mm: ±0.02(0.06)

Outlet : D

Injection-pump setting values
 Test specifications in parentheses

Timing-device travel

G02

Speed 1/min: 750
 Charge press. hPa: 1000
 Setting value mm: 1.30...1.70

Supply-pump pressure

Speed 1/min: 750
 Charge press hPa: 1000
 Setting value bar: 3.20...3.80

Full-load del. with charge press.:

Speed 1/min: 750
 Charge press. hPa: 1000
 Del. quantity cm³/
 1000S.: 84.50...85.50
 Dispersion cm³/: 4.0
 1000S.: (4.5)

Full-load del. w/out charge press.:

Speed 1/min: 500
 Del. quantity cm³/
 1000S.: 68.50...69.50

Low-idle speed regulation

Speed 1/min: 375
 Del. quantity cm³/
 1000S.: 8.00...14.00
 Del. quantity cm³/: 5.5
 1000S.: (7.0)

Full-load speed regulation

Speed 1/min: 1300
 Charge press hPa: 1000
 Del. quantity cm³/
 1000S.: 59.00...65.00

Start:

Speed 1/min: 100
 Del. quantity cm³/: 60.00...120.00
 mind 1000S.: 60.00

Inspection-pump test specifications
 Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1050
 Charge press hPa: 1000
 TD travel mm: 2.20...3.00
 mm: (1.90...3.30)

3rd speed 1/min: 750
 Charge press hPa: 1000
 TD travel mm: 1.30...1.70
 mm: (0.80...2.20)

4th speed 1/min: 600
Charge press hPa: 1000
TD travel mm: 0.40...1.20
mm: (0.10...1.50)

Supply-pump pressure characteristic:

1st speed 1/min: 500
Charge press. hPa: 1000
Supply-pump pressure bar: 2.20...2.80
2nd speed 1/min: 750
Charge press. hPa: 1000
Supply-pump pressure bar: 3.20...3.80
3rd speed 1/min: 1050
Charge press. hPa: 1000
Supply-pump pressure bar: 4.50...5.10

Overflow quantity at overflow valve:

1st speed 1/min: 500
Overflow quantity cm³/10s: 41.70...83.40
(26.70...98.40)
2nd speed 1/min: 1250
Charge press. hPa: 1000
Overflow quantity cm³/10s: 55.60...139.00
(40.60...154.00)

Delivery-quant. and breakaway char.:

1st speed 1/min: 700
Charge-air pressure-setting point hPa: 400
LDA-stroke mm: 5.0
Del. quantity cm³/1000S.: 77.50...78.50
(74.00...82.00)
2nd speed 1/min: 1400
Charge press. hPa: 1000
Del. quantity cm³/1000S.: 0.00...3.00
(0.00...3.00)
Del. quantity cm³/1000S.: 0.00...15.00
(0.00...15.00)
4th speed 1/min: 1330
Charge press. hPa: 1000
Del. quantity cm³/1000S.: 15.00...55.00
(15.00...55.00)
5th speed 1/min: 1300
Charge press. hPa: 1000
Del. quantity cm³/1000S.: 59.00...65.00
(56.00...68.00)
9th speed 1/min: 1250
Charge press. hPa: 1000
Del. quantity cm³/1000S.: 76.50...79.50
(75.00...81.00)
10th speed 1/min: 1050
Charge press. hPa: 1000

Del. quantity cm³/1000S.: 80.00...83.00
(78.00...85.00)
12th speed 1/min: 750
Charge press. hPa: 1000
Del. quantity cm³/1000S.: 84.50...85.50
(82.00...88.00)
18th speed 1/min: 500
Charge press. hPa: -
Del. quantity cm³/1000S.: 68.50...69.50
(65.00...73.00)
20th speed 1/min: 500
Charge press. hPa: 1000
Del. quantity cm³/1000S.: 83.00...91.00
-

Mech. shutoff:
Mech. Abstellung:

1st speed 1/min: 1250
Charge press. hPa: 1000
Del. quantity cm³/1000S.: 0.00...3.00
(0.00...3.00)

Idle delivery:

1st speed 1/min: 375
Del. quantity cm³/1000S.: 8-14 (6-16)
SCHRAUBE 12 MM
Dispersion cm³/1000S.: 5.5
(7.0)
2nd speed 1/min: 500
Del. quantity cm³/1000S.: 0.00...4.00
(0.00...4.00)
5th speed 1/min: 125
Del. quantity cm³/1000S.: 0.00...5.00
SCHRAUBE 3.0 MM

Automatic starting fuel delivery:

1st speed 1/min: 250
Del. quantity cm³/1000S.: 85.00...135.00
(85.00...135.00)
2nd speed 1/min: 450
Del. quantity cm³/1000S.: 48.00...88.00
(48.00...88.00)
4th speed 1/min: 100
Del. quantity cm³/1000S.: 60.00...120.00
(60.00...120.00)

Mounting and assembly dimensions:

Designation
K mm: -
KF mm: 5.2...5.6
MS mm: -
LDA stroke mm: 5.0
Ya mm: 37.0...41.0
Yb mm: 43.7...48.9

Remarks:

: CDC # 392 4062
:



BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CDC
 Copl. date: : FD 361
 Edition : 29.06.93
 replaces : -
 Calibrating oil : ISO-4113
 Injection pump : VE6/12F1100R512
 Type number : 0 460 426 217
 Customer Part-No. :
 Customer Part-No. :

Customer-specific information
 Customer : CASE

Engine : 6 T 590

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
 return temp. °C
 with thermometer : 40.00...48.00
 Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
 assembly : 1 688 901 027

Opening
 Pressure bar: 250.00...253.00

Perforated-plate
 diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
 x Wall thickness : 2.00
 x Length mm: 840

Start of delivery
 Prestroke mm: 0.2
 (from BDC): ±0.02(0.04)

Start of delivery block
 Piston stroke mm: 1.5
 mm: ±0.02(0.06)

Outlet : D

Injection-pump setting values
 Test specifications in parentheses

Timing-device travel

Speed 1/min: 900
 Charge press. hPa: 1000
 Setting value mm: 2.40...2.80
 Shutoff
 electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 900
 Charge press hPa: 1000
 Setting value bar: 5.70...6.30
 Shutoff
 electromagnet volt: 12

Full-load del. with charge press.:

Speed 1/min: 700
 Charge press. hPa: 1000
 Del. quantity cm³/
 1000S.: 76.50...77.50
 Shutoff
 electromagnet Volt: 12
 Dispersion cm³/: 4.0
 1000S.: (4.5)

Full-load del. w/out charge press.:

Speed 1/min: 500
 Del. quantity cm³/
 1000S.: 49.00...50.00
 Shutoff
 electromagnet Volt: 12

Low-idle speed regulation

Speed 1/min: 400
 Del. quantity cm³/
 1000S.: 6.00...12.00
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 5.5
 1000S.: (7.0)

Full-load speed regulation

Speed 1/min: 1180
 Charge press hPa: 1000
 Del. quantity cm³/
 1000S.: 38.00...42.00
 Shutoff
 electromagnet Volt: 12

Start:

Speed 1/min: 100
 Del. quantity cm³/: 50.00...80.00
 mind 1000S.: 50.00

Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1100
Charge press hPa: 1000
TD travel mm: 3.70...4.50
mm: (3.40...4.80)

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 900
Charge press hPa: 1000
TD travel mm: 2.40...2.80
mm: (1.90...3.30)

Shutoff
electromagnet Volt: 12
4th speed 1/min: 700
Charge press hPa: 1000
TD travel mm: 0.80...1.60
mm: (0.50...1.90)

Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 500
Charge press. hPa: 1000
Supply-pump pressure bar: 3.80...4.40

Shutoff
electromagnet Volt: 12
2nd speed 1/min: 900
Charge press. hPa: 1000
Supply-pump pressure bar: 5.70...6.30

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1100
Charge press. hPa: 1000
Supply-pump pressure bar: 6.50...7.10

Shutoff
electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 500
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Overflow quantity cm³/10s: 41.70...83.40
(26.70...98.40)

2nd speed 1/min: 1100
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12

Overflow quantity cm³/10s: 55.60...139.00
(40.60...154.00)

Delivery-quant. and breakaway char.:

1st speed 1/min: 700
Charge-air pressure-setting point hPa: 350
LDA-stroke mm: 5.9
Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000s.: 68.00...69.00
(64.50...72.50)

2nd speed 1/min: 1260
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000s.: 0.00...3.00
(0.00...3.00)

3rd speed 1/min: 1200
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000s.: 15.00...35.00
(15.00...35.00)

4th speed 1/min: 1230
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000s.: 5.00...35.00
--

5th speed 1/min: 1180
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000s.: 38.00...42.00
(34.00...46.00)

9th speed 1/min: 1100
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000s.: 66.00...69.00
(64.50...70.50)

12th speed 1/min: 700
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000s.: 76.50...77.50
(74.00...80.00)

18th speed 1/min: 500
Charge press. hPa: -
Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000s.: 49.00...50.00
(46.00...53.00)

20th speed 1/min: 500
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12

Del. quantity cm³/: 72.00...78.00
1000S.: (70.00...80.00)

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 400
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: -

Idle delivery:

1st speed 1/min: 400
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 6.00...12.00
1000S.: (4.00...14.00)

Dispersion cm³/: 5.5
1000S.: (7.0)

5th speed 1/min: 375
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 11.00...19.00
1000S.: (9.00...21.00)

Automatic starting fuel delivery:

1st speed 1/min: 180
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 70.00...100.00
1000S.: (70.00...100.00)

2nd speed 1/min: 350
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 65.00...85.00
1000S.: (65.00...85.00)

4th speed 1/min: 100
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 50.00...80.00
1000S.: (50.00...80.00)

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation
K mm: -
KF mm: 5.2...5.6
MS mm: 1.0...1.4

SVS max. mm: 6.0
LDA stroke mm: 5.9
Ya mm: 34.8...38.8
Yb mm: 35.9...41.1

Remarks:
: CDC # 392 4983
:

G07

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN
 Edition : 23.07.93
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 400 849 203
 Injection pump
 Pump designation : PE10A95D520/5LS2501
 EP type number : 0 410 699 997
 Governor
 Governor design. : RQ900AB985R
 Governor no. : 0 420 201 618

Customer-spec. information
 Customer : MAN

Engine : D2530MTE

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 1.70...1.80
 : (1.65...1.85)

Rack travel in mm : 9.00...12.00
 Firing order : 10- 9- 4- 1- 8- 7-
 6- 3- 5- 2

Phasing : 0-45-72-117-144-189-
 216-261-288-333
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 10

BASIC SETTING

1st speed rpm : 850

Rack travel in mm : 10.70...10.80

Del.quantity cm³/ : 10.2...10.4

100 s : (10.0...10.6)

Spread cm³ : 0.3

100 s : (0.6)

2nd speed rpm : ?

Rack travel in mm : ?

Del.quantity cm³/ : ?

100 s : (?)

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 850

Del.quantity : 102.5...104.5

1000 : (100.5...106.5)

Spread cm³ : 3.00

1000 : (6.00)

RATED SPEED

1st version

Control Lever

position degrees: 29...37

Testing:

1st rack travel in: 10.40

Speed rpm : 895...950

2nd rack travel in: 4.50

Speed rpm : 930...940

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.40

Speed rpm : 895...905

HIGH IDLE

1st version

Speed rpm : 936
Rack travel in mm : 4.50...4.80

LOW IDLE

Speed rpm : 300
Rack travel in mm : 5.20...5.40
Del.quantity cm³/ : 17.0...23.0
1000 s: (14.0...26.0)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks:
: MAN-NR. 2-7779

APPLICATION

Generator

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM
 Edition : 02.07.93
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 400 866 195
 Injection pump
 Pump designation : PES6A100D320/3RS2763
 EP type number : 0 410 806 006
 Governor
 Governor design. : RSV375...1000A0C2190
 -70R
 Governor no. : 0 420 233 309

Customer-spec. information
 Customer : C.D.C.

Engine : 6 CTA

1st version kW : 166.0
 Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 27...29

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 12.90...13.00

Del.quantity cm³/ : 13.3...13.5

100 s: (13.1...13.7)

Spread cm³ : 0.4

100 s: (0.6)

2nd speed rpm : 375.0
 Rack travel in mm : 5.3...5.5
 Del.quantity cm³/ : 1.7...2.1
 100 s: (1.4...2.3)
 Spread cm³ : 0.6
 100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...0.70

Governor spring pre-tension
 Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1000
 Del.quantity : 133.5...135.5
 1000 : (131.5...137.5)
 Spread cm³ : 4.00
 1000 : (6.50)

RATED SPEED

1st version
 Control lever
 position degrees: 37...45

Testing:

1st rack travel in: 11.90
Speed rpm : 1050...1060
2nd rack travel in: 4.00
Speed rpm : 1125...1135
3rd rack travel in: 4.00
Speed rpm : 1120...1150
4th rack travel in: 1200
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 15...23
Setting point w/out bumper spring
Speed rpm : 375
Rack travel in mm : 4.9

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 375
Rack travel in mm : 5.30...5.50

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1000
Rack travel in m: 12.90...13.00
2nd speed rpm : 750
Rack travel in m: 13.60...13.80

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750
Del. quantity cm³/ : 146.0...150.0
1000 s: (144.0...152.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.90
Speed rpm : 1050...1060

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 145.0...165.0
1000 s: (140.0...170.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 375
Rack travel in mm : 5.30...5.50
Del. quantity cm³/ : 17.0...21.0
1000 s: (14.5...23.5)

Spread cm³ : 6.00
1000 s: (8.00)

Remarks:

: C.D.C. # 3921117

Adjustment without torque-control
spring retainer with 0,5 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

Limit shutoff stop screw to 1.0 mm.

Start-of-delivery mark at 10° cam
rotation angle after start of delivery,
cylinder 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM
 Edition : 15.06.93
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 400 866 215

Injection pump
 Pump designation : PES6A100D320/3RS2691
 EP type number : 9 410 230 025
 Governor
 Governor design. : RSV400...1050ADC2190
 -85R
 Governor no. : 0 420 233 324

Customer-spec. information
 Customer : C.D.C

Engine : 6 CT 8.3

1st version kW : 154.4
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

G12

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 12.40...12.50

Del.quantity cm³/ : 12.5...12.7

100 s: (12.3...12.9)

Spread cm³ : 0.4

100 s: (0.6)

2nd speed rpm : 400.0
 Rack travel in mm : 5.8...6.0
 Del.quantity cm³/ : 1.5...1.9
 100 s: (1.3...2.2)

Spread cm³ : 0.6

100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 4.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050

Del.quantity : 125.5...127.5

1000 : (123.5...129.5)

Spread cm³ : 4.00

1000 : (6.50)

RATED SPEED

1st version

Control lever

position degrees: 38...46

Testing:

1st rack travel in: 11.40
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1140...1150
3rd rack travel in: 4.00
Speed rpm : 1135...1165
4th rack travel in: 1275
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 19...27
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 5.4

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 400
Rack travel in mm : 5.80...6.00

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11.40
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 145.0...165.0
1000 s: (140.0...170.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 400
Rack travel in mm : 5.80...6.00
Del. quantity cm³/ : 15.5...19.5
1000 s: (13.0...22.0)
Spread cm³ : 6.00
1000 s: (8.00)

Remarks:

: C.D.C. # 3921141

Limit shutoff stop screw to 1.0 mm.

Start-of-delivery mark at 10° cam
rotation angle after start of delivery,
cylinder 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM
 Edition : 15.06.93
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 400 866 216

Injection pump
 Pump designation : PES6A100D320/3RS2691
 EP type number : 9 410 230 025
 Governor
 Governor design. : RSV400...1050AOC2216
 -8R
 Governor no. : 0 420 233 333

Customer-spec. information
 Customer : C.D.C.

Engine : 6 CT 8.3 ltr

1st version kW : 131.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 017

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 27...29

G14

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 11.30...11.40

Del.quantity cm³/ : 10.6...10.8

100 s: (10.4...11.0)

Spread cm³ : 0.4

100 s: (0.6)

2nd speed rpm : 400.0

Rack travel in mm : 5.5...5.7

Del.quantity cm³/ : 1.4...1.8

100 s: (1.1...2.0)

Spread cm³ : 0.6

100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050

Del.quantity : 106.0...108.0

1000 : (104.0...110.0)

Spread cm³ : 4.00

1000 : (6.50)

RATED SPEED

1st version

Control lever

position degrees: 44...52

Testing:

1st rack travel in: 10.30
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1150...1160
3rd rack travel in: 4.00
Speed rpm : 1140...1170
4th rack travel in: 1250
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 24...32
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 5.1

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 400
Rack travel in mm : 5.50...5.70

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1050
Rack travel in m: 11.30...11.40
2nd speed rpm : 750
Rack travel in m: 12.30...12.50

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750
Del. quantity cm³/ : 120.0...124.0
1000 s: (118.0...126.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.30
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 135.0...155.0
1000 s: (130.0...160.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 400
Rack travel in mm : 5.50...5.70
Del. quantity cm³/ : 14.0...18.0
1000 s: (11.5...20.5)

Spread cm³ : 6.00
1000 s: (8.00)

Remarks:

: C.D.C. # 3921106

Adjustment without torque-control
spring retainer with 1 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

Limit shutoff stop screw to 1.0 mm.

Start-of-delivery mark 11° cam angle
after start of delivery cyl. 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE
 Edition : 21.04.93
 Replaces : 02.93
 Test oil : ISO-4113
 Combination no. : 0 400 876 381
 Injection pump
 Pump designation : PES6A100D410RS2762-1
 EP type number : 0 410 806 008
 Governor
 Governor design. : RSV425...1050A0C2252
 -1L
 Governor no. : 0 420 232 571

Customer-spec. information
 Customer : JOHN DEERE

Engine : 6076TRW-30

1st version kW : 131.5
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 457 413 010

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 27...29

Prestroke mm : 2.95...3.05
 : (2.90...3.10)
 Rack travel in mm : 10.50...10.50
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 11.30...11.40

Del. quantity cm³/ : 10.9...11.1

100 s: (10.5...11.1)

Spread cm³ : 0.4

100 s: (0.6)

2nd speed rpm : 425.0

Rack travel in mm : 5.5...5.7

Del. quantity cm³/ : 2.1...2.5

100 s: (1.9...2.7)

Spread cm³ : 0.6

100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 5.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050

Del. quantity : 109.0...111.0

1000 : (105.0...111.0)

Spread cm³ : 4.00

1000 : (6.50)

RATED SPEED

1st version

Control lever

position degrees: 42...50

Testing:

1st rack travel in: 10.30
Speed rpm : 1095...1105
2nd rack travel in: 4.00
Speed rpm : 1165...1175
3rd rack travel in: 4.00
Speed rpm : 1155...1185
4th rack travel in: 1300
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 20...28
Setting point w/out bumper spring
Speed rpm : 425
Rack travel in mm : 5.1

Testing:

Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 425
Rack travel in mm : 5.50...5.70

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1050
Rack travel in m: 11.30...11.40
2nd speed rpm : 750
Rack travel in m: 13.10...13.30

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750
Del.quantity cm3/ : 134.5...138.5
1000 s: (132.5...140.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.30
Speed rpm : 1095...1105

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 100.0...120.0
1000 s: (95.0...125.0)

LOW IDLE

Speed rpm : 425
Rack travel in mm : 5.50...5.70
Del.quantity cm3/ : 21.5...25.5
1000 s: (19.5...27.5)

Spread cm3 : 6.00
1000 s: (8.00)

Remarks:

: JOHN DEERE # RE41833
Start-of-delivery mark = 13,5° after
start of delivery cyl. 1.

Adjustment without torque-control
spring retainer with 0,5 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

APPLICATION

Tractor (tractor engines)

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE
 Edition : 21.04.93
 Replaces : 02.93
 Test oil : ISO-4113

Combination no. : 0 400 876 411

Injection pump
 Pump designation : PES6A100D410RS2762-1
 EP type number : 0 410 806 008
 Governor
 Governor design. : RSV425...1100A0C2252
 -2L
 Governor no. : 0 420 232 591

Customer-spec. information
 Customer : JOHN DEERE

Engine : 6076ADW-30

1st version kW : 135.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 457 413 010

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 27...29

Prestroke mm : 2.95...3.05
 : (2.90...3.10)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 11.10...11.20

Del.quantity cm³/ : 10.4...10.6
 100 s : (10.2...10.8)

Spread cm³ : 0.4
 100 s : (0.6)

2nd speed rpm : 425.0
 Rack travel in mm : 6.0...6.2
 Del.quantity cm³/ : 3.1...3.5
 100 s : (2.9...3.7)

Spread cm³ : 0.6
 100 s : (0.8)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...0.70

Governor spring pre-tension
 Click setting x : 4.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1100
 Del.quantity : 104.5...106.5
 1000 : (102.5...108.5)

Spread cm³ : 4.00
 1000 : (6.50)

RATED SPEED

1st version
 Control lever
 position degrees: 45...53

Testing:

1st rack travel in: 10.10
Speed rpm : 1140...1150
2nd rack travel in: 4.00
Speed rpm : 1205...1215
3rd rack travel in: 4.00
Speed rpm : 1195...1225
4th rack travel in: 1350
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 19...27
Setting point w/out bumper spring
Speed rpm : 425
Rack travel in mm : 5.6

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 425
Rack travel in mm : 6.00...6.20

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 11.10...11.20
2nd speed rpm : 700
Rack travel in m: 13.50...13.70

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 700
Del. quantity cm³/ : 141.0...145.0
1000 s: (139.0...147.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.10
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 100.0...120.0
1000 s: (95.0...125.0)

LOW IDLE

Speed rpm : 425
Rack travel in mm : 6.00...6.20
Del. quantity cm³/ : 31.0...35.0
1000 s: (29.0...37.0)

Spread cm³ : 6.00
1000 s: (8.00)

Remarks:

: JOHN DEERE # RE55529
Start-of-delivery mark = 13,5° after
start of delivery cyl. 1.

Adjustment without torque-control
spring retainer with 0,5 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE
 Edition : 02.07.93
 Replaces : 02.93
 Test oil : ISO-4113
 Combination no. : 0 400 876 416
 Injection pump
 Pump designation : PES6A100D41ORS2762-1
 EP type number : 0 410 806 008
 Governor
 Governor design. : RSV400...1100A2C2229
 -1L
 Governor no. : 0 420 232 594

Customer-spec. information
 Customer : JOHN DEERE

Engine : 6076 TF 030

1st version kW : 142.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 457 413 010

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 27...29

G20

Prestroke mm : 2.95...3.05
 : (2.90...3.10)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 12.00...12.10

Del. quantity cm³/ : 12.0...12.2

100 s: (11.8...12.4)

Spread cm³ : 0.4

100 s: (0.6)

2nd speed rpm : 400.0

Rack travel in mm : 5.2...5.4

Del. quantity cm³/ : 1.9...2.3

100 s: (1.6...2.5)

Spread cm³ : 0.6

100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Del. quantity : 120.0...122.0

1000 : (118.0...124.0)

Spread cm³ : 4.00

1000 : (6.50)

RATED SPEED

1st version

Control lever

position degrees: 43...51

Testing:

1st rack travel in: 11.00
Speed rpm : 1145...1155
2nd rack travel in: 4.00
Speed rpm : 1205...1215
3rd rack travel in: 4.00
Speed rpm : 1195...1225
4th rack travel in: 1300
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 18...26
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 4.8

Testing:

Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 400
Rack travel in mm : 5.20...5.40
Rack travel in mm : 2.00
Speed rpm : 550...610

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 12.00...12.10
2nd speed rpm : 700
Rack travel in m: 13.90...14.10

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 700
Del.quantity cm³/ : 151.0...154.0
1000 s: (148.5...156.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.00
Speed rpm : 1145...1155

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 100.0...120.0
1000 s: (95.0...125.0)

LOW IDLE

Speed rpm : 400
Rack travel in mm : 5.20...5.40

Del.quantity cm³/ : 19.0...23.0
1000 s: (16.5...25.5)
Spread cm³ : 6.00
1000 s: (8.00)

Remarks:

: JOHN DEERE # RE48640
Adjustment without torque-control
spring retainer with 1 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

Start-of-delivery mark = 13,5° after
start of delivery cyl. 1.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE
 Edition : 15.06.93
 Replaces : 03.93
 Test oil : ISO-4113

Combination no. : 0 400 876 417

Injection pump
 Pump designation : PES6A100D410RS2762-1
 EP type number : 0 410 806 008
 Governor
 Governor design. : RSV425...1100ADC2252
 -4L
 Governor no. : 0 420 232 595

Customer-spec. information
 Customer : JOHN DEERE

Engine : 6076ARW-32

1st version kW : 145.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 457 413 010

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

G22

Prestroke mm : 2.95...3.05
 : (2.90...3.10)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 11.90...12.00

Del.quantity cm³/ : 11.4...11.6

100 s: (11.2...11.8)

Spread cm³ : 0.4

100 s: (0.6)

2nd speed rpm : 425.0

Rack travel in mm : 5.7...5.9

Del.quantity cm³/ : 2.6...3.0

100 s: (2.3...3.2)

Spread cm³ : 0.6

100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 3.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Del.quantity : 114.0...116.0

1000 : (112.0...118.0)

Spread cm³ : 4.00

1000 : (6.50)

RATED SPEED

1st version

Control lever

position degrees: 43...51

Testing:

1st rack travel in: 10.90
Speed rpm : 1145...1155
2nd rack travel in: 4.00
Speed rpm : 1205...1215
3rd rack travel in: 4.00
Speed rpm : 1195...1225
4th rack travel in: 1300
Speed rpm : 0.30...1.40

LOW IDLE 1
Control lever
position degrees: 20...28
Setting point w/out bumper spring
Speed rpm : 425
Rack travel in mm : 5.3

Testing:
Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 425
Rack travel in mm : 5.70...5.90

TORQUE CONTROL
Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 11.90...12.00
2nd speed rpm : 750
Rack travel in m: 13.90...14.10

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 750
Del.quantity cm³/ : 143.5...147.5
1000 s: (141.5...149.5)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 10.90
Speed rpm : 1145...1155

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 100.0...120.0
1000 s: (95.0...125.0)

LOW IDLE

Speed rpm : 425
Rack travel in mm : 5.70...5.90
Del.quantity cm³/ : 26.0...30.0
1000 s: (23.5...32.5)

Spread cm³ : 6.00
1000 s: (8.00)

Remarks:

: JOHN DEERE # RE55711
Start-of-delivery mark = 13,5° after
start of delivery cyl. 1.

Adjustment without torque-control
spring retainer with 0,5 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : VOL
 Edition : 20.12.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 401 846 505E
 Injection pump
 Pump designation : PE6P110A320RS483
 EP type number : 0 411 816 159
 Governor
 Governor design. : RQV250...1100PA918E
 Governor no. : 0 421 813 772

Customer-spec. information
 Customer : VOLVO-TRUCK

Engine : TD71

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 025
 Inlet press., bar : 1.50
 Test nozzle holder
 assembly : 0 681 343 009
 Opening
 pressure, bar : 172...175
 Test Lines : 1 680 750 015
 Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27
 Prestroke mm : 3.00...3.10
 : (2.95...3.15)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700
 Rack travel in mm : 11.20...11.30
 Del. quantity cm³/ : 10.1...10.3
 100 s: (9.8...10.6)
 Spread cm³ : 0.4
 100 s: (0.7)
 2nd speed rpm : 250.0
 Rack travel in mm : 5.3...5.5
 Del. quantity cm³/ : 1.6...2.0
 100 s: (1.3...2.3)
 Spread cm³ : 0.3
 100 s: (0.6)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250
 travel mm : 1.10...1.30
 2nd speed rpm : 380
 travel mm : 2.30...2.60
 3rd speed rpm : 500
 travel mm : 2.90...3.30
 4th speed rpm : 1260
 travel mm : 7.70...7.90
 5th speed rpm : 1400
 travel mm : 9.00...9.30

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 1330
 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 700
 Aneroid pressure h: 900
 Del. quantity : 101.0...103.0
 1000 : (98.0...106.0)
 Spread cm³ : 4.00
 1000 : (7.50)

RATED SPEED

1st version
Control lever
position degrees: 104...112

Testing:
1st rack travel in: 10.20
Speed rpm : 1160...1170
2nd rack travel in: 4.00
Speed rpm : 1260...1290
4th rack travel in: 14.00
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 56...64

Testing:
Speed rpm : 100
Minimum rack travel: 6.80
Speed rpm : 250
Rack travel in mm : 5.30...5.50

CONSTANT REGULATION
Speed rpm : 250...450

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 11.20...11.30

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 8.70...8.90
2nd pressure hPa : 560
Rack travel in m: 11.00...11.10
3rd pressure hPa : 290
Rack travel in m: 9.10...9.30

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: -
Speed rpm : 700
Del. quantity cm³/ : 68.0...70.0
1000 s: (65.0...73.0)

BREAKAWAY

1st version

G25

1mm rack travel less than
full load rack tr: 10.20
Speed rpm : 1160...1170

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 170.0...200.0
1000 s: (166.0...204.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 250
Rack travel in mm : 5.30...5.50
Del. quantity cm³/ : 16.0...20.0
1000 s: (13.0...23.0)
Spread cm³ : 3.00
1000 s: (6.00)

Remarks:

:
Delivery-valve spring pre-tension =
2.40...2.60 mm.
Permissible alteration from 2.20...2.90
mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF 11,7 m
 Edition : 23.10.92
 Replaces : 02.92
 Test oil : ISO-4113

Combination no. : 0 401 846 566

Injection pump
 Pump designation : PE6P110A320RS526
 EP type number : 0 411 816 178
 Governor
 Governor design. : RQ275/1000PA818-3
 Governor no. : 0 421 801 534

Customer-spec. information
 Customer : DAF

Engine : LT 160 G

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90
 : (2.75...2.95)

Rack travel in mm : 14.00...15.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 4.90...5.10
 & maximum rack tra: 13.0...14.0
 Difference ° CS : 2.00...4.00

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 14.20...14.30

Del. quantity cm³/ : 15.6...15.8

100 s: (15.3...16.0)

Spread cm³ : 0.4

100 s: (0.7)

2nd speed rpm : 300.0

Rack travel in mm : 8.0...8.2

Del. quantity cm³/ : 2.5...3.0

100 s: (2.3...3.3)

Spread cm³ : 0.4

100 s: (0.7)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 600

Rack travel in mm : 15.20...16.40

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Aneroid pressure h: 1000

Del. quantity : 156.0...158.0

1000 : (153.5...160.5)

Spread cm³ : 4.00

1000 : (7.50)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 15.8

Testing:

1st rack travel in: 12.50

Speed rpm : 1030...1045

2nd rack travel in: 4.00

Speed rpm : 1100...1130
4th rack travel in: 1300
Speed rpm : 0.00...1.40

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 8.1

Testing:

Speed rpm : 200
Minimum rack travel: 10.70
Speed rpm : 300
Rack travel in mm : 8.00...8.20
Rack travel in mm : 3.00
Speed rpm : 370...410

TORQUE CONTROL

Dimension a mm : 0.40
Torque control curve - 1st version
1st speed rpm : 980
Rack travel in m: 13.40...13.60
2nd speed rpm : 600
Rack travel in m: 14.40...14.60
3rd speed rpm : 750
Rack travel in m: 13.90...14.10
4th speed rpm : 825
Rack travel in m: 13.60...13.80

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 1000
Rack travel mm : 14.20...14.30

Measurement

Speed 1/min : 600

1st pressure hPa : -
Rack travel in m: 12.70...12.90
2nd pressure hPa : 290
Rack travel in m: 13.80...13.90
3rd pressure hPa : 260
Rack travel in m: 13.20...13.40

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000
Speed rpm : 980
Del.quantity cm³/ : 136.0...138.0
1000 s: (132.0...142.0)
Aneroid pressure h: -
Speed rpm : 600

Del.quantity cm³/ : 122.0...124.0
1000 s: (119.5...126.5)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 12.50
Speed rpm : 1030...1045

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 280.0...320.0
1000 s: (276.0...324.0)
Rack travel in mm : 19.50...21.00

LOW IDLE

Speed rpm : 300
Rack travel in mm : 8.00...8.20
Del.quantity cm³/ : 25.5...30.5
1000 s: (23.0...33.0)
Spread cm³ : 4.50
1000 s: (7.50)

Remarks:

:
Check electrically unlatched starting
fuel delivery (EES) with 24 volt.

On activation of the starting solenoid,
the start position must be reached.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : VOL 10,0 06
Edition : 05.02.93
Replaces : 08.91
Test oil : ISO-4113

Combination no. : 0 401 846 745

Injection pump
Pump designation : PE6P110A320RS3080
EP type number : 0 411 816 722
Governor
Governor design. : RQV250...1100PA919
Governor no. : 0 421 813 776

Customer-spec. information
Customer : VOLVO

Engine : TD100GA

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.50...3.60
 : (3.45...3.65)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 12.30...12.40

Del.quantity cm3/ : 16.7...16.9

100 s: (16.4...17.2)

Spread cm3 : 0.4

100 s: (0.7)

2nd speed rpm : 250.0

Rack travel in mm : 3.9...4.1

Del.quantity cm3/ : 1.5...1.9

100 s: (1.2...2.1)

Spread cm3 : 0.3

100 s: (0.6)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250

travel mm : 1.20...1.30

2nd speed rpm : 370

travel mm : 2.60...3.00

3rd speed rpm : 430

travel mm : 3.50...3.90

4th speed rpm : 1160

travel mm : 8.10...8.30

5th speed rpm : 1210

travel mm : 9.40...9.60

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1180

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Aneroid pressure h: 900

Del.quantity : 167.0...169.0

1000 : (164.0...172.0)

Spread cm3 : 4.00

1000 : (7.50)

RATED SPEED

1st version
Control lever
position degrees: 115...123

Testing:
1st rack travel in: 11.30
Speed rpm : 1160...1170
2nd rack travel in: 4.00
Speed rpm : 1220...1250
4th rack travel in: 1350
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 60...68

Testing:
Speed rpm : 100
Minimum rack travel: 5.30
Speed rpm : 250
Rack travel in mm : 3.90...4.10

CONSTANT REGULATION
Speed rpm : 270...380

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 12.30...12.40

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.80...10.00
2nd pressure hPa : 610
Rack travel in m: 12.10...12.20
3rd pressure hPa : 280
Rack travel in m: 10.10...10.30

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: -
Speed rpm : 700
Del.quantity cm³/ : 121.0...124.0
1000 s: (118.5...126.5)

BREAKAWAY

1st version

H01

1mm rack travel less than
full load rack tr: 11.30
Speed rpm : 1160...1170

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 160.0...190.0
1000 s: (156.0...196.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 250
Rack travel in mm : 3.90...4.10
Del.quantity cm³/ : 15.0...19.0
1000 s: (12.5...21.5)
Spread cm³ : 3.00
1000 s: (6.00)

Remarks:

:
Delivery-valve spring pre-tension =
2.40...2.60 mm.
Permissible alteration from 2.20...2.90
mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF 8,3 p 9
 Edition : 26.06.92
 Replaces : 03.91
 Test oil : ISO-4113
 Combination no. : 0 401 846 905
 Injection pump
 Pump designation : PE6P110A72ORS3225Z
 EP type number : 0 411 816 762
 Governor
 Governor design. : RQ275/1200PA913-1
 Governor no. : 0 421 801 549

Customer-spec. information
 Customer : DAF

Engine : HT 168

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 025
 Inlet press., bar : 1.50
 Test nozzle holder
 assembly : 0 681 343 009
 Opening
 pressure, bar : 172...175
 Test lines : 1 680 750 015
 Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x600
 (A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27
 Prestroke mm : 3.70...3.80
 : (3.65...3.85)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1000
 Rack travel in mm : 12.30...12.40
 Del. quantity cm³/ : 12.0...12.2
 100 s : (11.7...12.4)
 Spread cm³ : 0.4
 100 s : (0.7)
 2nd speed rpm : 275.0
 Rack travel in mm : 7.2...7.4
 Del. quantity cm³/ : 1.4...1.9
 100 s : (1.1...2.1)
 Spread cm³ : 0.4
 100 s : (0.7)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 550
 Rack travel in mm : 15.20...16.40

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1000
 Aneroid pressure h: 1000
 Del. quantity : 120.0...122.0
 1000 : (117.5...124.5)
 Spread cm³ : 4.00
 1000 : (7.50)

RATED SPEED

1st version
 Setting point:
 Speed rpm : 550
 Rack travel in mm : 15.8

Testing:
 1st rack travel in: 11.30
 Speed rpm : 1235...1250
 2nd rack travel in: 4.00
 Speed rpm : 1320...1350
 4th rack travel in: 1400
 Speed rpm : 0.00...1.40

LOW IDLE 1
 Setting point w/out bumper spring

Speed rpm : 275
Rack travel in mm : 4.8

Testing:

Speed rpm : 100
Minimum rack trave: 7.00
Speed rpm : 275
Rack travel in mm : 4.70...4.90
Rack travel in mm : 2.00
Speed rpm : 340...380

TORQUE CONTROL

Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 1000
Rack travel in m: 13.30...13.50
2nd speed rpm : 1200
Rack travel in m: 13.10...13.40

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 1000
Rack travel mm : 12.30...12.40

Measurement

Speed 1/min : 600
1st pressure hPa : -
Rack travel in m: 10.80...10.90
2nd pressure hPa : 400
Rack travel in m: 12.00...12.10
3rd pressure hPa : 320
Rack travel in m: 11.50...11.70

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -
Speed rpm : 600
Del.quantity cm³/ : 83.5...85.5
1000 s: (81.0...88.0)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 11.30
Speed rpm : 1235...1250

LOW IDLE

Speed rpm : 275

H03

Rack travel in mm : 4.70...4.90

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 11,0 x 2
 Edition : 05.03.93
 Replaces : 06.91
 Test oil : ISO-4113

Combination no. : 0 401 846 946

Injection pump
 Pump designation : PE6P110A32DLS3851-1
 EP type number : 0 411 818 780
 Governor
 Governor design. : RQ300/1050PA1007-1
 Governor no. : 0 421 801 589

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM441

1st version kW : 151.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test Lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.40...4.50
 : (4.35...4.55)
 Rack travel in mm : 9.00...12.00
 Firing order : 6- 3- 5- 2- 4- 1

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 12.20...12.30

Del. quantity cm³/ : 11.8...12.0

100 s: (11.5...12.2)

Spread cm³ : 0.8

100 s: (1.3)

2nd speed rpm : 300.0

Rack travel in mm : 6.7...6.9

Del. quantity cm³/ : 1.6...2.2

100 s: (1.3...2.4)

Spread cm³ : 0.6

100 s: (1.1)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 650

Rack travel in mm : 13.10...13.90

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050

Del. quantity : 118.0...120.0

1000 : (115.5...122.5)

Spread cm³ : 8.50

1000 : (13.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 650

Rack travel in mm : 13.5

Testing:

1st rack travel in: 11.20
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1170...1200
4th rack travel in: 1300
Speed rpm : 0.00...2.00

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.8

Testing:

Speed rpm : 200
Minimum rack trave: 8.40
Speed rpm : 300
Rack travel in mm : 6.70...6.90
Rack travel in mm : 2.00
Speed rpm : 390...430

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 600
Del.quantity cm3/ : 119.0...125.0
1000 s: (116.5...127.5)
Spread cm3 : 11.00
1000 s: (14.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.20
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 130.0...150.0
1000 s: (126.0...154.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 23.10.92
 Replaces : 09.92
 Test oil : ISO-4113
 Combination no. : 0 401 846 967
 Injection pump
 Pump designation : PE6P110A320LS3851-2
 EP type number : 0 411 816 785
 Governor
 Governor design. : RQV350...1050PA378
 -12
 Governor no. : 0 421 814 016

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM441

1st version kW : 151.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.40...4.50
 : (4.35...4.55)
 Rack travel in mm : 9.00...12.00
 Firing order : 6- 3- 5- 2- 4- 1

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 12.20...12.30

Del. quantity cm³/ : 11.8...12.0

100 s: (11.5...12.2)

Spread cm³ : 0.8

100 s: (1.3)

2nd speed rpm : 350.0

Rack travel in mm : 7.5...7.7

Del. quantity cm³/ : 1.6...2.2

100 s: (1.3...2.4)

Spread cm³ : 0.6

100 s: (1.1)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 350
 travel mm : 1.80...2.30

2nd speed rpm : 455
 travel mm : 3.40...3.90

3rd speed rpm : 880
 travel mm : 5.60...6.10

4th speed rpm : 1107
 travel mm : 8.00...8.50

5th speed rpm : 1209
 travel mm : 9.80...10.20

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1

Speed rpm : 1130

Rack travel in mm : 9.90...12.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1050
Del.quantity : 118.0...120.0
1000 : (115.5...122.5)
Spread cm³ : 8.50
1000 : (13.00)

RATED SPEED

1st version
Control lever
position degrees: 116...124

Testing:
1st rack travel in: 11.20
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1160...1190
4th rack travel in: 1300
Speed rpm : 0.00...1.40

LOW IDLE 1
Control lever
position degrees: 67...75

Testing:
Speed rpm : 250
Minimum rack trave: 10.00
Speed rpm : 350
Rack travel in mm : 7.50...7.70

CONSTANT REGULATION
Speed rpm : 350...450

START CUT-OUT

Speed 1/min : 270 (290)

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 600
Del.quantity cm³/ : 119.0...125.0
1000 s: (116.5...127.5)
Spread cm³ : 11.00
1000 s: (14.0)
Speed rpm : 1050
Del.quantity cm³/ : 88.0...90.0
1000 s: (85.5...92.5)
Spread cm³ : 11.00
1000 s: (14.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11.20
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 130.0...150.0
1000 s: (126.0...154.0)

Remarks:
:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 20.09.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 401 848 798
 Injection pump
 Pump designation : PE8P110A320LS3846-2
 EP type number : 0 411 818 725
 Governor
 Governor design. : RQ300/1050PA187-25
 Governor no. : 0 421 801 482

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM442

1st version kW : 213.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.40...4.50
 : (4.35...4.55)
 Rack travel in mm : 9.00...12.00
 Firing order : 8- 7- 2- 6- 3- 5- 4
 -1

Phasing : 0-45-90-135-180-225-
 270-315
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 12.20...12.30

Del.quantity cm³/ : 12.0...12.2
 100 s: (11.7...12.4)

Spread cm³ : 0.8
 100 s: (1.3)

2nd speed rpm : 300.0
 Rack travel in mm : 7.5...8.1
 Del.quantity cm³/ : 1.6...2.2
 100 s: (1.3...2.4)
 Spread cm³ : 0.6
 100 s: (0.9)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 650
 Rack travel in mm : 13.10...13.90

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1050
 Del.quantity : 120.0...122.0
 1000 : (117.5...124.5)
 Spread cm³ : 8.50
 1000 : (13.00)

RATED SPEED

1st version
 Setting point:
 Speed rpm : 650
 Rack travel in mm : 13.5

Testing:

1st rack travel in: 11.20
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1175...1205
4th rack travel in: 1300
Speed rpm : 0.00...2.00

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 7.8

Testing:

Speed rpm : 200
Minimum rack trave: 9.50
Speed rpm : 300
Rack travel in mm : 7.50...8.10
Rack travel in mm : 2.00
Speed rpm : 390...430

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 600
Del.quantity cm³/ : 121.0...127.0
1000 s: (118.5...129.5)
Spread cm³ : 11.00
1000 s: (14.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.20
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 140.0...160.0
1000 s: (136.0...164.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 20.09.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 401 848 816
 Injection pump
 Pump designation : PE8P110A32OLS3846-2
 EP type number : 0 411 818 725
 Governor
 Governor design. : RQ300/1050PA1007
 Governor no. : 0 421 801 588

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM442

1st version kW : 195.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 025
 Inlet press., bar : 1.50
 Overflow
 quantity min. 1/h: 100...120
 Test nozzle holder
 assembly : 1 688 901 101
 Opening
 pressure, bar : 207...210
 Orifice plate
 diameter mm : 0,6
 Test lines : 1 680 750 008
 Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27
 Prestroke mm : 4.40...4.50
 : (4.35...4.55)
 Rack travel in mm : 9.00...12.00
 Firing order : 8- 7- 2- 6- 3- 5-
 4- 1

Phasing : 0-45-90-135-180-225-
 270-315
 Tolerance + - ° : 0.50 (0.75)
 Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 1050
 Rack travel in mm : 11.90...12.00
 Del. quantity cm³/ : 11.4...11.6
 100 s: (11.1...11.8)
 Spread cm³ : 0.8
 100 s: (1.3)
 2nd speed rpm : 300.0
 Rack travel in mm : 7.7...8.3
 Del. quantity cm³/ : 1.6...2.2
 100 s: (1.3...2.4)
 Spread cm³ : 0.6
 100 s: (1.1)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 650
 Rack travel in mm : 13.10...13.90

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1050
 Del. quantity : 114.0...116.0
 1000 : (111.5...118.5)
 Spread cm³ : 8.50
 1000 : (13.00)

RATED SPEED

1st version
 Setting point:
 Speed rpm : 650
 Rack travel in mm : 13.5

Testing:
1st rack travel in: 10.90
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1170...1200
4th rack travel in: 1300
Speed rpm : 0.00...2.00

LOW IDLE 1
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 8.0

Testing:
Speed rpm : 200
Minimum rack trave: 9.50
Speed rpm : 300
Rack travel in mm : 7.70...8.30
Rack travel in mm : 2.00
Speed rpm : 390...430

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 600
Del.quantity cm3/ : 114.0...120.0
1000 s: (111.5...122.5)
Spread cm3 : 11.00
1000 s: (14.)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 10.90
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 130.0...150.0
1000 s: (126.0...154.0)

Remarks:
:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : FIA 17,2 g1
 Edition : 03.02.93
 Replaces : 11.91
 Test oil : ISO-4113
 Combination no. : 0 401 848 822
 Injection pump
 Pump designation : PE8P120A920/5LS3857
 EP type number : 0 411 828 725
 Governor
 Governor design. : RQV300...1200PA357
 Governor no. : 0 421 813 188

Customer-spec. information
 Customer : IVECO-FIAT

Engine : 8280.02.412

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter
 x Wall thickness
 x Length mm : 8.00X2.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.85...2.95
 : (2.85...3.00)
 Rack travel in mm : 9.00...12.00

Firing order : 1- 8- 4- 3- 6- 5-
 7- 2

Phasing : 0-45-90-135-180-225-
 270-315
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1200

 Rack travel in mm : 8.00...8.10

 Del.quantity cm3/ : 14.1...14.3
 100 s : (13.8...14.6)

 Spread cm3 : 0.5
 100 s : (0.9)

2nd speed rpm : 300.0
 Rack travel in mm : 4.0...4.4
 Del.quantity cm3/ : 1.7...2.3
 100 s : (1.4...2.6)
 Spread cm3 : 0.3
 100 s : (1.2)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1295
 travel mm : 9.10...9.30
 2nd speed rpm : 250
 travel mm : 0.70...1.10
 3rd speed rpm : 500
 travel mm : 3.30...3.90
 4th speed rpm : 800
 travel mm : 5.10...5.50
 5th speed rpm : 1500
 travel mm : 11.00...12.00

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 1330
 Rack travel in mm : 6.30...8.90

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1200
 Del.quantity : 141.0...143.0
 1000 : (138.0...146.0)

Spread cm3 : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 114...122

Testing:
1st rack travel in: 7.00
Speed rpm : 1290...1300
2nd rack travel in: 4.00
Speed rpm : 1335...1365
4th rack travel in: 1500
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 60...68

Testing:
Speed rpm : 100
Minimum rack travel: 5.70
Speed rpm : 300
Rack travel in mm : 4.10...4.30

CONSTANT REGULATION
Speed rpm : 310...440

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 600
Del. quantity cm3/ : 139.0...145.0
1000 s: (136.0...148.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 7.00
Speed rpm : 1290...1300

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm3/ : 220.0...250.0
1000 s: (216.0...254.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 4.00...4.40
Del. quantity cm3/ : 17.0...23.0
1000 s: (14.0...26.0)

Spread cm3 : 8.00
1000 s: (12.00)

Remarks:

Check electrically unlatched starting
fuel delivery (EES) with 24 volt.

On activation of the starting solenoid,
the start position must be reached.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN 18,2 g
 Edition : 05.01.90
 Replaces : 11.89
 Test oil : ISO-4113

Combination no. : 0 401 849 746

Injection pump
 Pump designation : PE10P12DA520/4LS3855
 EP type number : 0 411 829 709
 Governor
 Governor design. : RQV300...1000PA838
 Governor no. : 0 421 813 585

Customer-spec. information
 Customer : MAN

Engine : D2840LF/460

1st version kw : 338.0
 Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test Lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 3.90...4.00
 : (3.85...4.05)
 Rack travel in mm : 9.00...12.00
 Firing order : 10- 9- 4- 1- 8- 7-
 : 6- 3- 5- 2

Phasing : 0-45-72-117-144-189-
 : 216-261-288-333
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 10

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 10.50...10.60

Del.quantity cm³/ : 20.4...20.6
 100 s: (20.1...20.9)

Spread cm³ : 0.5
 100 s: (0.9)

2nd speed rpm : 300.0
 Rack travel in mm : 5.2...5.4
 Del.quantity cm³/ : 1.7...2.3
 100 s: (1.4...2.6)
 Spread cm³ : 0.8
 100 s: (1.2)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300
 travel mm : 1.00...1.40
 2nd speed rpm : 500
 travel mm : 3.10...3.50
 3rd speed rpm : 850
 travel mm : 6.60...6.90
 4th speed rpm : 1000
 travel mm : 7.70...7.90

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 1025
 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1000
 Aneroid pressure h: 1000

Del.quantity : 204.0...206.0
1000 : (201.0...209.0)
Spread cm3 : 5.00
1000 : (9.00)

RATED SPEED

1st versior:
Control lever
position degrees: 116...124

Testing:
1st rack travel in: 9.50
Speed rpm : 1040...1050
2nd rack travel in: 4.00
Speed rpm : 1105...1135
4th rack travel in: 1250
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 80...88

Testing:
Speed rpm : 100
Minimum rack trave: 6.80
Speed rpm : 300
Rack travel in mm : 5.20...5.40

CONSTANT REGULATION
Speed rpm : 335...445

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 1000
Rack travel mm : 10.50...10.60

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.20...9.40
2nd pressure hPa : 380
Rack travel in m: 9.60...9.70
3rd pressure hPa : 500
Rack travel in m: 10.10...10.30

START CUT-OUT

Speed 1/min : 230 (250)

FUEL DELIVERY CHARACTERISTICS

1st version

H15

Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 144.0...146.0
1000 s: (141.0...149.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 9.50
Speed rpm : 1040...1050

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 190.0...210.0
1000 s: (186.0...214.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 5.20...5.40
Del.quantity cm3/ : 17.0...23.0
1000 s: (14.0...26.0)
Spread cm3 : 8.00
1000 s: (12.00)

Remarks:
: MAN-NR. 2-7779

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF 11,7 f
 Edition : 27.11.92
 Replaces : 06.90
 Test oil : ISO-4113

Combination no. : 0 401 876 335

Injection pump
 Pump designation : PE6P120A32ORS415-1
 EP type number : 0 411 826 123
 Governor
 Governor design. : RSV250...1100P5A508
 -8

Governer no. : 0 421 833 298

Customer-spec. information
 Customer : DAF

Engine : DKV 1160

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90
 : (2.75...2.95)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 650

Rack travel in mm : 11.10...11.20

Del.quantity cm³/ : 17.1...17.3

100 s: (16.8...17.5)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 250.0

Rack travel in mm : 6.7...6.9

Del.quantity cm³/ : 1.4...2.0

100 s: (1.1...2.3)

Spread cm³ : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 4.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 650

Aneroid pressure h: 700

Del.quantity : 171.0...173.0

1000 : (168.5...175.5)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Control lever

position degrees: 95...103

Testing:

1st rack travel in: 9.10

Speed rpm : 1135...1145

2nd rack travel in: 4.00

Speed rpm : 1175...1205

3rd rack travel in: 4.00
Speed rpm : 1200...1230
4th rack travel in: 1375
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 66...74
Setting point w/out bumper spring
Speed rpm : 250
Rack travel in mm : 5.8

Testing:

Speed rpm : 100
Speed rpm : 250
Rack travel in mm : 6.20...6.40
Rack travel in mm : 2.00
Speed rpm : 630...730

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1090
Rack travel in m: 10.10...10.20
2nd speed rpm : 650
Rack travel in m: 11.40...11.50
3rd speed rpm : 800
Rack travel in m: 10.80...11.00
4th speed rpm : 850
Rack travel in m: 10.40...10.70

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 700
Rack travel mm : 11.10...11.20

Measurement

Speed 1/min : 600

1st pressure hPa : -
Rack travel in m: 9.50...9.70
2nd pressure hPa : 290
Rack travel in m: 10.70...10.90
3rd pressure hPa : 260
Rack travel in m: 10.20...10.50

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700
Speed rpm : 1090
Del.quantity cm³/ : 159.0...161.0
1000 s: (156.0...164.0)
Aneroid pressure h: -
Speed rpm : 600

Del.quantity cm³/ : 129.0...131.0
1000 s: (126.5...133.5)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 9.10
Speed rpm : 1135...1145

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 310.0...350.0
1000 s: (306.0...354.0)
Rack travel in mm : 19.50...21.00

LOW IDLE

Speed rpm : 250
Rack travel in mm : 6.20...6.40

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF 11,7 f1
 Edition : 27.11.92
 Replaces : 06.90
 Test oil : ISO-4113
 Combination no. : 0 401 876 338
 Injection pump
 Pump designation : PE6P12DA32ORS415-1
 EP type number : 0 411 826 123
 Governor
 Governor design. : RSV250...1100P5A508
 Governor no. : 0 421 833 321

Customer-spec. information
 Customer : DAF

Engine : KS 238

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 025
 Inlet press., bar : 1.50
 Test nozzle holder
 assembly : 1 688 901 019
 Opening
 pressure, bar : 207...210
 Orifice plate
 diameter mm : 0,8
 Test lines : 1 680 750 067
 Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27
 Prestroke mm : 2.80...2.90
 : (2.75...2.95)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 650
 Rack travel in mm : 11.90...12.00
 Del. quantity cm³/ : 18.8...19.0
 100 s : (18.5...19.2)
 Spread cm³ : 0.5
 100 s : (0.9)

2nd speed rpm : 250.0
 Rack travel in mm : 6.6...6.8
 Del. quantity cm³/ : 1.7...2.3
 100 s : (1.4...2.6)
 Spread cm³ : 0.8
 100 s : (1.2)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...0.70

Governor spring pre-tension
 Click setting x : 5.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 650
 Aneroid pressure h: 700
 Del. quantity : 188.0...190.0
 1000 : (185.5...192.5)
 Spread cm³ : 5.00
 1000 : (9.00)

RATED SPEED

1st version
 Control lever
 position degrees: 99...107

Testing:
 1st rack travel in: 10.00
 Speed rpm : 1130...1140
 2nd rack travel in: 4.00
 Speed rpm : 1185...1215

3rd rack travel in: 4.00
Speed rpm : 1225...1255
4th rack travel in: 14.00
Speed rpm : 0.30...1.40

LOW IDLE 1

Control Lever
position degrees: 70...78
Setting point w/out bumper spring
Speed rpm : 250
Rack travel in mm : 6.0

Testing:

Speed rpm : 100
Speed rpm : 250
Rack travel in mm : 6.40...6.60
Rack travel in mm : 2.00
Speed rpm : 600...700

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1090
Rack travel in m: 11.00...11.10
2nd speed rpm : 650
Rack travel in m: 12.20...12.30
3rd speed rpm : 760
Rack travel in m: 11.60...11.80
4th speed rpm : 810
Rack travel in m: 11.20...11.40

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 700
Rack travel mm : 11.90...12.00

Measurement

Speed 1/min : 600

1st pressure hPa : -
Rack travel in m: 9.70...9.90
2nd pressure hPa : 300
Rack travel in m: 11.30...11.40
3rd pressure hPa : 230
Rack travel in m: 10.40...10.70

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700
Speed rpm : 1090
Del.quantity cm³/ : 181.0...183.0
1000 s: (178.0...186.0)
Aneroid pressure h: -
Speed rpm : 600

Del.quantity cm³/ : 131.0...133.0
1000 s: (128.5...135.5)

BREAKAWAY

1st version
imm rack travel less than

full load rack tr: 10.00
Speed rpm : 1130...1140

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 290.0...330.0
1000 s: (286.0...334.0)
Rack travel in mm : 19.50...21.00

LOW IDLE

Speed rpm : 250
Rack travel in mm : 6.40...6.60

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : PEN 7,1 d
 Edition : 7.7.93
 Replaces : 23.10.91
 Test oil : ISO-4113

Combination no. : 0 401 876 749

Injection pump
 Pump designation : PE6P120A320RS3163
 EP type number : 0 411 826 750
 Governor
 Governor design. : RSV250...1250POA374
 Governor no. : 0 421 833 222

Customer-spec. information
 Customer : VOLVO-PENTA

Engine : TAMD 71 A

TEST BENCH REQUIREMENTS

Test oil inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder assembly : 1 688 901 019

Opening pressure, bar : 207...210

Orifice plate diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter x Wall thickness x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 9.00...12.00

H2O

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 12.80...12.90

Del.quantity cm3/ : 21.6...21.8

100 s : (21.3...22.1)

Spread cm3 : 0.5

100 s : (0.9)

2nd speed rpm : 250.0

Rack travel in mm : 4.0...4.2

Del.quantity cm3/ : 1.1...1.6

100 s : (0.8...1.8)

Spread cm3 : 0.5

100 s : (0.7)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension
 Click setting x : 3.75

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1000
 Aneroid pressure h: 1500
 Del.quantity : 216.0...218.0

1000 : (213.0...221.0)

Spread cm3 : 5.00

1000 : (9.00)

RATED SPEED

1st version
 Control Lever
 position degrees: 103...111

Testing:
 1st rack travel in: 11.80
 Speed rpm : 1290...1300
 2nd rack travel in: 4.00

Speed rpm : 1370...1400
4th rack travel in: 1500
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 72...80
Setting point w/out bumper spring
Speed rpm : 250
Rack travel in mm : 3.6
Speed rpm : 250
Rack travel in mm : 4.00...4.20
Rack travel in mm : 2.00
Speed rpm : 360...420

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 1500
Rack travel mm : 12.80...12.90

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 7.80...8.00
2nd pressure hPa : 310
Rack travel in m: 8.00...8.10
3rd pressure hPa : 1000
Rack travel in m: 12.40...12.60

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -
Speed rpm : 1000
Del.quantity cm³/ : 116.0...118.0
1000 s: (113.0...121.0)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 11.80
Speed rpm : 1290...1300

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 170.0...200.0
1000 s: (166.0...204.0)

LOW IDLE

Speed rpm : 250
Rack travel in mm : 4.00...4.20
Del.quantity cm³/ : 11.0...16.0
1000 s: (8.5...18.5)
Spread cm³ : 5.00
1000 s: (7.00)

Remarks:

Delivery-valve spring pre-tension =
2.40...2.60 mm.
Permissible alteration from 2.20...2.90
mm

APPLICATION

Navy

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN 11,9g10
 Edition : 21.08.91
 Replaces : 08.91
 Test oil : ISO-4113
 Combination no. : 0 402 036 086
 Injection pump
 Pump designation : PES6P110A720/3LS477-
 2
 EP type number : 0 412 016 071
 Governor
 Governor design. : RQ250/1050PA845-2
 Governor no. : 0 421 801 604

Customer-spec. information
 Customer : MAN

Engine : D2866 F/UM

1st version kw : 152.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60
 : (3.45...3.65)

H22

Rack travel in mm : 9.00...12.00
 Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 800

Rack travel in mm : 10.90...11.00

Del. quantity cm³/ : 10.0...10.3

100 s: (9.7...10.5)

Spread cm³ : 0.4

100 s: (0.7)

2nd speed rpm : 250.0
 Rack travel in mm : 6.0...6.2
 Del. quantity cm³/ : 1.5...2.0
 100 s: (1.2...2.2)

Spread cm³ : 0.4
 100 s: (0.7)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -2

Speed rpm : 600
 Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 800
 Del. quantity : 100.0...103.0
 1000 : (97.5...105.5)
 Spread cm³ : 4.00
 1000 : (7.50)

RATED SPEED

1st version
 Setting point:
 Speed rpm : 600
 Rack travel in mm : 20.0

Testing:
 1st rack travel in: 9.90
 Speed rpm : 1095...1110
 2nd rack travel in: 4.00
 Speed rpm : 1170...1200

4th rack travel in: 1350
Speed rpm : 0.00...1.00

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 250

Rack travel in mm : 6.1

Testing:

Speed rpm : 100

Minimum rack trave: 7.60

Speed rpm : 250

Rack travel in mm : 6.00...6.20

Rack travel in mm : 2.00

Speed rpm : 330...370

TORQUE CONTROL

Dimension a mm : -

Torque control curve - 1st version

1st speed rpm : 800

Rack travel in m: 10.90...11.00

2nd speed rpm : 1050

Rack travel in m: 10.80...11.00

START CUT-OUT

Speed 1/min : 170 (190)

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 1050

Del.quantity cm³/ : 110.0...114.0

1000 s: (107.0...117.0)

Speed rpm : 500

Del.quantity cm³/ : 92.0...96.0

1000 s: (89.0...99.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.90

Speed rpm : 1095...1110

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm³/ : 110.0...130.0

1000 s: (106.0...134.0)

LOW IDLE

Speed rpm : 250

Rack travel in mm : 6.00...6.20

Del.quantity cm³/ : 15.0...20.0
1000 s: (12.5...22.5)

Spread cm³ : 4.50
1000 s: (7.50)

Remarks:

: MAN-NR. 3-7156

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN
 Edition : 18.12.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 402 036 088
 Injection pump
 Pump designation : PES6P110A720/3LS477-
 2
 EP type number : 0 412 016 071
 Governor
 Governor design. : RQ300/750PA845-3
 Governor no. : 0 421 801 630

Customer-spec. information
 Customer : MAN

Engine : D2866 UH

1st version kw : 133.0
 Rated speed : 1500

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60
 : (3.45...3.65)

Rack travel in mm : 9.00...12.00
 Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 750

Rack travel in mm : 11.80...11.90

Del. quantity cm³/ : 12.6...12.9

100 s: (12.3...13.1)

Spread cm³ : 0.4

100 s: (0.7)

2nd speed rpm : 300.0

Rack travel in mm : 6.0...6.2

Del. quantity cm³/ : 1.5...2.0

100 s: (1.2...2.2)

Spread cm³ : 0.4

100 s: (0.7)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 750

Del. quantity : 126.0...129.0

1000 : (123.5...131.5)

Spread cm³ : 4.00

1000 : (7.50)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 10.80

Speed rpm : 795...810

2nd rack travel in: 4.00

Speed rpm : 830...860

4th rack travel in: 1000
Speed rpm : 0.00...1.00

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.1

Testing:

Speed rpm : 100
Minimum rack trave: 7.60
Speed rpm : 300
Rack travel in mm : 6.00...6.20
Rack travel in mm : 2.00
Speed rpm : 350...410

TORQUE CONTROL

Dimension a mm : -
Torque control curve - 1st version
1st speed rpm : 750
Rack travel in m: 11.80...11.90
2nd speed rpm : 500
Rack travel in m: 11.80...12.00

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 500
Del.quantity cm³/ : 117.0...121.0
1000 s: (114.0...124.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.80
Speed rpm : 795...810

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 110.0...130.0
1000 s: (106.0...134.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 6.00...6.20
Del.quantity cm³/ : 15.0...20.0
1000 s: (12.5...22.5)
Spread cm³ : 4.50
1000 s: (7.50)

H25

Remarks:

: MAN-NR. 3-7187

APPLICATION

Rail car

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM
 Edition : 22.01.93
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 402 036 749

Injection pump
 Pump designation : PES6P110A120RS3286
 EP type number : 0 412 016 737
 Governor
 Governor design. : KQV350...1150PA1014
 -2K
 Governor no. : 0 421 815 296

Customer-spec. information
 Customer : CUMMINS

Engine : 6CTA-A

1st version kW : 168.0
 Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

Prestroke mm : 3.20...3.30
 : (3.15...3.35)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 15.30...15.40

Del. quantity cm³/ : 15.1...15.3

100 s : (14.9...15.5)

Spread cm³ : 0.4

100 s : (0.7)

2nd speed rpm : 350.0

Rack travel in mm : 5.7...5.9

Del. quantity cm³/ : 1.3...1.7

100 s : (1.0...1.9)

Spread cm³ : 0.6

100 s : (0.9)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 350

travel mm : 2.10...2.40

2nd speed rpm : 450

travel mm : 3.40...3.80

3rd speed rpm : 900

travel mm : 5.60...6.00

4th speed rpm : 1200

travel mm : 8.10...8.30

5th speed rpm : 1400

travel mm : 10.20...10.60

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Aneroid pressure h : 1200

Del. quantity : 151.0...153.0

1000 : (149.0...155.0)

Spread cm³ : 4.00

1000 : (7.50)

RATED SPEED

1st version
Control lever
position degrees: 55...63

Testing:
1st rack travel in: 14.10
Speed rpm : 1215...1225
2nd rack travel in: 4.00
Speed rpm : 1380...1410
4th rack travel in: 1500
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 12...20

Testing:
Speed rpm : 275
Minimum rack trave: 7.30
Speed rpm : 350
Rack travel in mm : 5.70...5.90

CONSTANT REGULATION
Speed rpm : 350...650

TORQUE CONTROL
Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 15.30...15.40
2nd speed rpm : 750
Rack travel in m: 14.00...14.40
3rd speed rpm : 1150
Rack travel in m: 15.10...15.30
4th speed rpm : 650
Rack travel in m: 13.80...14.20

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 1100
Pressure hPa : 1200
Rack travel mm : 15.30...15.40

Measurement
Speed 1/min : 1100

1st pressure hPa : -
Rack travel in m: 8.90...9.30
2nd pressure hPa : 250
Rack travel in m: 10.60...10.70
3rd pressure hPa : 560
Rack travel in m: 13.60...14.00

START CUT-OUT

H27

Speed 1/min : 290 (300)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1200
Speed rpm : 750
Del.quantity cm³/ : 152.0...156.0
1000 s: (150.0...158.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 74.5...78.5
1000 s: (72.5...80.5)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 14.10
Speed rpm : 1215...1225

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 135.0...175.0
1000 s: (130.0...180.0)

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.70...5.90
Del.quantity cm³/ : 13.0...17.0
1000 s: (10.5...19.5)
Spread cm³ : 6.00
1000 s: (9.00)

Remarks: : C.D.C. # 3921971

Start-of-delivery mark = 5.5° after
start of delivery cyl. 1.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM
 Edition : 22.01.93
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 402 036 750
 Injection pump
 Pump designation : PES6P110A12ORS3286
 EP type number : 0 412 016 737
 Governor
 Governor design. : RQV350...1150PA1014
 -3K
 Governor no. : 0 421 815 298

Customer-spec. information
 Customer : CDC

Engine : 6CTA-A

1st version kW : 156.5
 Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 419 992 198
 Inlet press., bar : 1.50
 Test nozzle holder
 assembly : 1 688 901 101
 Opening
 pressure, bar : 207...210
 Orifice plate
 diameter mm : 0,6
 Test lines : 1 680 750 008
 Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 22...24

Prestroke mm : 3.20...3.30
 : (3.15...3.35)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)
 Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100
 Rack travel in mm : 14.50...14.60
 Del. quantity cm³/ : 14.1...14.3
 100 s: (13.9...14.5)
 Spread cm³ : 0.4
 100 s: (0.7)

2nd speed rpm : 350.0
 Rack travel in mm : 5.8...6.0
 Del. quantity cm³/ : 1.7...2.1
 100 s: (1.4...2.3)
 Spread cm³ : 0.6
 100 s: (0.9)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 350
 travel mm : 2.10...2.40
 2nd speed rpm : 450
 travel mm : 3.40...3.80
 3rd speed rpm : 900
 travel mm : 5.60...6.00
 4th speed rpm : 1200
 travel mm : 8.10...8.30
 5th speed rpm : 1400
 travel mm : 10.20...10.60

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1100
 Aneroid pressure h: 1200
 Del. quantity : 141.5...143.5
 1000 : (139.5...145.5)
 Spread cm³ : 4.00
 1000 : (7.50)

RATED SPEED

1st version
Control lever
position degrees: 52...60

Testing:
1st rack travel in: 13.30
Speed rpm : 1220...1230
2nd rack travel in: 4.00
Speed rpm : 1365...1395
4th rack travel in: 1500
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 10...18

Testing:
Speed rpm : 275
Minimum rack trave: 7.30
Speed rpm : 350
Rack travel in mm : 5.80...6.00

CONSTANT REGULATION
Speed rpm : 350...520

TORQUE CONTROL
Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 14.50...14.60
2nd speed rpm : 750
Rack travel in m: 13.40...13.60
3rd speed rpm : 1150
Rack travel in m: 14.30...14.50
4th speed rpm : 650
Rack travel in m: 13.10...13.50

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 1100
Pressure hPa : 1200
Rack travel mm : 14.50...14.60

Measurement
Speed 1/min : 1100

1st pressure hPa : -
Rack travel in m: 8.90...9.30
2nd pressure hPa : 250
Rack travel in m: 10.60...10.70
3rd pressure hPa : 560
Rack travel in m: 13.60...14.00

START CUT-OUT

J01

Speed 1/min : 290 (300)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1200
Speed rpm : 750
Del.quantity cm3/ : 137.0...141.0
1000 s: (135.0...143.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 74.5...78.5
1000 s: (72.5...80.5)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 13.30
Speed rpm : 1220...1230

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 135.0...175.0
1000 s: (130.0...180.0)

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.80...6.00
Del.quantity cm3/ : 17.0...21.0
1000 s: (14.5...23.5)
Spread cm3 : 6.00
1000 s: (9.00)

Remarks: : C.D.C. # 3921972

Start-of-delivery mark = 5.5° after
start of delivery cyl. 1.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM
 Edition : 22.01.93
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 402 036 751
 Injection pump
 Pump designation : PES6P110A120RS3286
 EP type number : 0 412 016 737
 Governor
 Governor design. : RGV350..1200PA1014
 -4K
 Governor no. : 0 421 815 299

Customer-spec. information
 Customer : CDC

Engine : 6CTA-A

1st version kW : 156.5
 Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve
 : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test Lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 22...24

Prestroke mm : 3.20...3.30
 : (3.15...3.35)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100
 Rack travel in mm : 14.50...14.60
 Del.quantity cm³/ : 14.1...14.3
 100 s: (13.9...14.5)
 Spread cm³ : 0.4
 100 s: (0.7)

2nd speed rpm : 350.0
 Rack travel in mm : 5.8...6.0
 Del.quantity cm³/ : 1.7...2.1
 100 s: (1.4...2.3)
 Spread cm³ : 0.6
 100 s: (0.9)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 350
 travel mm : 2.10...2.40
 2nd speed rpm : 450
 travel mm : 3.40...3.80
 3rd speed rpm : 900
 travel mm : 5.60...6.00
 4th speed rpm : 1200
 travel mm : 8.10...8.30
 5th speed rpm : 1400
 travel mm : 10.20...10.60

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1100
 Aneroid pressure h: 1200
 Del.quantity : 141.5...143.5
 1000 : (139.5...145.5)
 Spread cm³ : 4.00
 1000 : (7.50)

RATED SPEED

1st version
Control lever
position degrees: 54...62

Testing:
1st rack travel in: 13.30
Speed rpm : 1270...1280
2nd rack travel in: 4.00
Speed rpm : 1400...1430
4th rack travel in: 1500
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 10...18

Testing:
Speed rpm : 275
Minimum rack trave: 7.30
Speed rpm : 350
Rack travel in mm : 5.80...6.00

CONSTANT REGULATION
Speed rpm : 350...520

TORQUE CONTROL
Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 14.50...14.60
2nd speed rpm : 750
Rack travel in m: 13.40...13.60
3rd speed rpm : 1150
Rack travel in m: 14.30...14.50
4th speed rpm : 650
Rack travel in m: 13.10...13.50

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 1100
Pressure hPa : 1200
Rack travel mm : 14.50...14.60

Measurement
Speed 1/min : 1100

1st pressure hPa : -
Rack travel in m: 8.90...9.30
2nd pressure hPa : 215
Rack travel in m: 10.40...10.50
3rd pressure hPa : 475
Rack travel in m: 13.00...13.40

START CUT-OUT

J03

Speed 1/min : 290 (300)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1200
Speed rpm : 750
Del.quantity cm3/ : 137.0...141.0
1000 s: (135.0...143.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 74.5...78.5
1000 s: (72.5...80.5)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 13.30
Speed rpm : 1270...1280

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 135.0...175.0
1000 s: (130.0...180.0)

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.80...6.00
Del.quantity cm3/ : 17.0...21.0
1000 s: (14.5...23.5)
Spread cm3 : 6.00
1000 s: (9.00)

Remarks:

: C.D.C. # 3921973

Start-of-delivery mark = 5.5° after
start of delivery cyl. 1.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : RVI
 Edition : 20.03.92
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 402 046 340CL
 Injection pump
 Pump designation : PES6P120A320RS525
 EP type number : 0 412 026 058
 Governor
 Governor design. : RQV300...1050PA955
 Governor no. : 0 421 813 856

Customer-spec. information
 Customer : RVI

Engine : MIDS062045J

1st version kW : 160.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 9.40...9.50

Del.quantity cm³/ : 13.8...14.0

100 s: (13.5...14.3)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 5.3...5.7

Del.quantity cm³/ : 1.5...2.1

100 s: (1.2...2.4)

Spread cm³ : 0.8

100 s: (1.2)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1050
 travel mm : 8.00...8.20

2nd speed rpm : 300
 travel mm : 1.10...1.50

3rd speed rpm : 430
 travel mm : 3.40...4.00

4th speed rpm : 1400
 travel mm : 11.00...12.00

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1

Speed rpm : 1075
 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1050
 Del.quantity : 138.0...140.0
 1000 : (135.0...143.0)

Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 298...306

Testing:

1st rack travel in: 8.40
Speed rpm : 1130...1140
2nd rack travel in: 4.20
Speed rpm : 1190...1220
4th rack travel in: 1350
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 244...252

Testing:

Speed rpm : 200
Minimum rack travel: 7.40
Speed rpm : 300
Rack travel in mm : 5.00...5.20

CONSTANT REGULATION

Speed rpm : 310...430

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 700
Del. quantity cm³/ : 126.0...134.0
1000 s: (123.0...137.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8.40
Speed rpm : 1130...1140

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 140.0...160.0
1000 s: (136.0...164.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : -4.20...-4.40

Remarks:

:
Setting and blocking of pointer of
start-of-delivery sensor on cyl. 1
start of delivery

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : UNI
 Edition : 9.7.1993
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 402 046 346

Injection pump
 Pump designation : PES6P110A720RS530
 EP type number : 0 412 016 075
 Governor
 Governor design. : RQV450...1050PA1016
 -2
 Governor no. : 0 421 813 967

Customer-spec. information
 Customer : IVECO-UNIC

Engine : 8365.25.532

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10
 : (1.95...2.15)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 9.80...9.90

Del. quantity cm³/ : 11.6...11.8

100 s: (11.4...12.1)

Spread cm³ : 0.4

100 s: (0.7)

2nd speed rpm : 450.0

Rack travel in mm : 5.4...5.8

Del. quantity cm³/ : 1.7...2.2

100 s: (1.4...2.4)

Spread cm³ : 0.4

100 s: (0.7)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1095
 travel mm : 6.70...6.90

2nd speed rpm : 450
 travel mm : 0.70...1.10

3rd speed rpm : 700
 travel mm : 3.30...3.90

4th speed rpm : 850
 travel mm : 4.80...5.20

5th speed rpm : 1650
 travel mm : 11.00...12.00

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1430

Rack travel in mm : 8.50...11.10

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Aneroid pressure h: 700

Del. quantity : 116.5...118.5

1000 : (114.0...121.0)

Spread cm³ : 4.00

1000 : (7.50)

RATED SPEED

1st version
Control lever
position degrees: 96...106

Testing:
1st rack travel in: 8.80
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1195...1225
4th rack travel in: 1400
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 66...74

Testing:
Speed rpm : 375
Minimum rack travel: 7.70
Speed rpm : 450
Rack travel in mm : 5.50...5.70
Rack travel in mm : 2.00
Speed rpm : 510...570

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 700
Rack travel mm : 9.80...9.90

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.10...9.30
2nd pressure hPa : 400
Rack travel in m: 9.60...9.70
3rd pressure hPa : 380
Rack travel in m: 9.30...9.50

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 700
Speed rpm : 1050
Del.quantity cm³/ : 113.0...117.0
1000 s: (110.0...120.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 97.0...99.0
1000 s: (94.5...101.5)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 8.80
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 195.0...225.0
1000 s: (191.0...229.0)

Remarks:

Check electrically unlatched starting
fuel delivery (EES) with 24 volt.

On activation of the starting solenoid,
the start position must be reached.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : UNI 8,3 a 4
 Edition : 23.10.92
 Replaces : 09.92
 Test oil : ISO-4113

Combination no. : 0 402 046 348

Injection pump
 Pump designation : PES6P110A72ORS530
 EP type number : 0 412 016 075
 Governor
 Governor design. : RQV450...1100PA1016
 -4
 Governor no. : 0 421 813 969

Customer-spec. information
 Customer : IVECO-UNIC

Engine : 8365.25.533

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10
 : (1.95...2.15)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 11.10...11.20

Del.quantity cm³/ : 13.8...14.0

100 s: (13.5...14.2)

Spread cm³ : 0.4

100 s: (0.7)

2nd speed rpm : 450.0

Rack travel in mm : 5.9...6.3

Del.quantity cm³/ : 1.7...2.2

100 s: (1.4...2.4)

Spread cm³ : 0.4

100 s: (0.7)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1145

travel mm : 6.80...7.00

2nd speed rpm : 450

travel mm : 1.20...1.60

3rd speed rpm : 700

travel mm : 3.30...3.90

4th speed rpm : 950

travel mm : 5.50...5.90

5th speed rpm : 1650

travel mm : 11.00...12.00

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1460

Rack travel in mm : 8.80...11.40

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Aneroid pressure h: 700

Del.quantity : 138.0...140.0

1000 : (135.5...142.5)

Spread cm³ : 4.00

1000 : (7.50)

RATED SPEED

1st version
Control lever
position degrees: 96...104

Testing:
1st rack travel in: 10.10
Speed rpm : 1140...1150
2nd rack travel in: 4.00
Speed rpm : 1260...1290
4th rack travel in: 1450
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 66...74

Testing:
Speed rpm : 325
Minimum rack travel: 9.60
Speed rpm : 450
Rack travel in mm : 6.00...6.20

CONSTANT REGULATION
Speed rpm : 470...550

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 700
Rack travel mm : 11.10...11.20

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.10...10.30
2nd pressure hPa : 480
Rack travel in m: 10.80...10.90
3rd pressure hPa : 440
Rack travel in m: 10.30...10.50

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 700
Speed rpm : 1100
Del. quantity cm³/ : 133.0...137.0
1000 s: (130.0...140.0)
Aneroid pressure h: -
Speed rpm : 500
Del. quantity cm³/ : 111.0...113.0
1000 s: (108.5...115.5)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 10.10
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 185.0...215.0
1000 s: (181.0...219.0)

Remarks:

:
Check electrically unlatched starting
fuel delivery (EES) with 24 volt.

On activation of the starting solenoid,
the start position must be reached.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : UNI 8,1 b
 Edition : 18.12.91
 Replaces : 11.91
 Test oil : ISO-4113

Combination no. : D 402 046 350

Injection pump
 Pump designation : PES6P110A720RS531
 EP type number : 0 412 016 076
 Governor
 Governor design. : RQV300...1100PA1016
 -7
 Governor no. : 0 421 813 972

Customer-spec. information
 Customer : IVECO-UNIC

Engine : 8361.25.510

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10
 : (1.95...2.15)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 10.30...10.40

Del. quantity cm³/ : 12.0...12.2
 100 s : (11.7...12.4)

Spread cm³ : 0.4
 100 s : (0.7)

2nd speed rpm : 300.0
 Rack travel in mm : 6.0...6.4
 Del. quantity cm³/ : 1.3...1.8
 100 s : (1.0...2.0)

Spread cm³ : 0.4
 100 s : (0.7)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1145
 travel mm : 8.30...8.50

2nd speed rpm : 300
 travel mm : 0.80...1.20

3rd speed rpm : 500
 travel mm : 2.50...3.10

4th speed rpm : 750
 travel mm : 4.50...4.90

5th speed rpm : 1350
 travel mm : 11.00...12.00

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1

Speed rpm : 1240

Rack travel in mm : 8.00...10.60

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Aneroid pressure h: 700

Del. quantity : 120.0...122.0
 1000 : (117.5...124.5)

Spread cm³ : 4.00
 1000 : (7.50)

RATED SPEED

1st version
Control Lever
position degrees: 117...125

Testing:

1st rack travel in: 9.30
Speed rpm : 1140...1150
2nd rack travel in: 4.00
Speed rpm : 1205...1235
4th rack travel in: 1350
Speed rpm : 0.00...1.00

LOW IDLE 1

Control Lever
position degrees: 63...71

Testing:

Speed rpm : 100
Minimum rack travel: 7.70
Speed rpm : 300
Rack travel in mm : 6.10...6.30

CONSTANT REGULATION

Speed rpm : 370...490

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 700
Rack travel mm : 10.30...10.40

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 8.90...9.20
2nd pressure hPa : 465
Rack travel in m: 9.90...10.00
3rd pressure hPa : 430
Rack travel in m: 9.40...9.60

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -
Speed rpm : 1100
Del.quantity cm3/ : 96.0...98.0
1000 s: (93.5...100.5)

BREAKAWAY

1st version

J11

1mm rack travel less than

full load rack tr: 9.30
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 215.0...245.0
1000 s: (211.0...249.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 6.00...6.40
Del.quantity cm3/ : 13.0...18.0
1000 s: (10.5...20.5)
Spread cm3 : 4.50
1000 s: (7.50)

Remarks:

:

Check electrically unlatched starting
fuel delivery (EES) with 24 volt.

On activation of the starting solenoid,
the start position must be reached.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : SSC 10,5 a
 Edition : 18.12.91
 Replaces : 5.84
 Test oil : ISO-4113
 Combination no. : 0 402 046 738
 Injection pump
 Pump designation : PES6P120A320RS3092-1
 EP type number : 0 412 026 710
 Governor
 Governor design. : RQV320...1300PA654
 Governor no. : 0 421 813 358

Customer-spec. information
 Customer : SSCM

Engine : 6LC 520 S2

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 025
 Inlet press., bar : 1.50
 Test nozzle holder
 assembly : 1 688 901 019
 Opening
 pressure, bar : 207...210
 Orifice plate
 diameter mm : 0,8
 Test lines : 1 680 750 067
 Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27
 Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4
 Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1280
 Rack travel in mm : 12.30...12.40
 Del.quantity cm³/ : 19.8...20.0
 100 s: (19.5...20.3)
 Spread cm³ : 0.5
 100 s: (0.9)
 2nd speed rpm : 320.0
 Rack travel in mm : 7.9...8.1
 Del.quantity cm³/ : 2.0...2.6
 100 s: (1.7...2.9)
 Spread cm³ : 0.8
 100 s: (1.2)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300
 travel mm : 1.30...1.50
 2nd speed rpm : 1000
 travel mm : 5.70...6.00
 3rd speed rpm : 1300
 travel mm : 8.30...8.50

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 1305
 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1280
 Del.quantity : 198.0...200.0
 1000 : (195.0...203.0)
 Spread cm³ : 5.00
 1000 : (9.00)

RATED SPEED

1st version
 Control lever
 position degrees: 61...69

Testing:

1st rack travel in: 12.30
Speed rpm : 1325...1335
2nd rack travel in: 4.00
Speed rpm : 1415...1445
4th rack travel in: 1550
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 13...21

Testing:

Speed rpm : 100
Minimum rack travel: 9.50
Speed rpm : 320
Rack travel in mm : 7.90...8.10

CONSTANT REGULATION

Speed rpm : 350...460

START CUT-OUT

Speed 1/min : 240 (260)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.30
Speed rpm : 1325...1335

LOW IDLE

Speed rpm : 320
Rack travel in mm : 7.90...8.10
Del. quantity cm³/ : 20.0...26.0
1000 s: (17.0...29.0)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : RVI 12,0 f2
 Edition : 03.12.92
 Replaces : 02.91
 Test oil : ISO-4113
 Combination no. : 0 402 046 791
 Injection pump
 Pump designation : PES6P120A32ORS3139
 EP type number : 0 412 026 718
 Governor
 Governor design. : RQV275...950PA728-4
 Governor no. : 0 421 813 678

Customer-spec. information
 Customer : RVI

Engine : MIDR 063540 H
 1st version kW : 264.0
 Rated speed : 1900

TEST BENCH REQUIREMENTS

Test oil inlet temp. °C : 38...42
 Overflow valve : 1 417 413 025
 Inlet press., bar : 1.50
 Test nozzle holder assembly : 1 688 901 101
 Opening pressure, bar : 207...210
 Orifice plate diameter mm : 0,8
 Test lines : 1 680 750 089
 Outside diameter x Wall thickness x Length mm : 8.00X2.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 3.50...3.60
 : (3.45...3.65)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 600
 Rack travel in mm : 13.30...13.40
 Del. quantity cm³/ : 21.2...21.4
 100 s : (20.9...21.7)
 Spread cm³ : 0.5
 100 s : (0.9)

2nd speed rpm : 275.0
 Rack travel in mm : 5.6...6.0
 Del. quantity cm³/ : 2.4...2.8
 100 s : (2.1...3.1)
 Spread cm³ : 0.8
 100 s : (1.2)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 275
 travel mm : 1.30...1.70
 2nd speed rpm : 450
 travel mm : 3.30...3.70
 3rd speed rpm : 800
 travel mm : 5.60...6.00
 4th speed rpm : 950
 travel mm : 6.70...6.90
 5th speed rpm : 1500
 travel mm : 11.00...12.00

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 1125
 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 600
 Aneroid pressure h: 1000
 Del. quantity : 212.0...214.0
 1000 : (209.0...217.0)

Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 59...67

Testing:

1st rack travel in: 12.30
Speed rpm : 1015...1025
2nd rack travel in: 4.00
Speed rpm : 1160...1190
4th rack travel in: 1250
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 9...17

Testing:

Speed rpm : 200
Minimum rack travel: 7.60
Speed rpm : 275
Rack travel in mm : 5.70...5.90

CONSTANT REGULATION

Speed rpm : 295...400

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 1000
Rack travel mm : 13.30...13.40

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.10...9.50
2nd pressure hPa : 200
Rack travel in m: 9.90...10.00
3rd pressure hPa : 660
Rack travel in m: 12.20...12.50

START CUT-OUT

Speed 1/min : 195 (215)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000
Speed rpm : 950

Del.quantity cm³/ : 210.0...216.0
1000 s: (207.0...219.0)

Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 118.0...120.0
1000 s: (115.0...123.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 12.30
Speed rpm : 1015...1025

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 150.0...180.0
1000 s: (146.0...184.0)

LOW IDLE

Speed rpm : 275
Rack travel in mm : 5.60...6.00
Del.quantity cm³/ : 24.0...28.0
1000 s: (21.0...31.0)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks:

:

Start-of-delivery mark 9° cam angle
after start of delivery cyl. 1.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : RVI 9,8 f
 Edition : 21.01.93
 Replaces : 10.92
 Test oil : ISO-4113

Combination no. : 0 402 046 798

Injection pump
 Pump designation : PES6P120A32ORS3139
 EP type number : 0 412 026 718
 Governor
 Governor design. : RQ275/1050PA893
 Governor no. : 0 421 801 442

Customer-spec. information

Customer : RVI

Engine : MIDR 062045 M

1st version kW : 236.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter
 x Wall thickness
 x Length mm : 8.00X2.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.50...3.60
 : (3.45...3.65)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 11.90...12.00

Del. quantity cm³/ : 22.1...22.3
 100 s : (21.8...22.6)

Spread cm³ : 0.5
 100 s : (0.9)

2nd speed rpm : 275.0
 Rack travel in mm : 5.4...5.9
 Del. quantity cm³/ : 2.6...3.0
 100 s : (2.3...3.3)
 Spread cm³ : 0.8
 100 s : (1.2)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -2
 Speed rpm : 600
 Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 600
 Aneroid pressure h: 1000
 Del. quantity : 221.0...223.0
 1000 : (218.0...226.0)
 Spread cm³ : 5.00
 1000 : (9.00)

RATED SPEED

1st version
 Setting point:
 Speed rpm : 600
 Rack travel in mm : 20.0

Testing:
 1st rack travel in: 10.90
 Speed rpm : 1105...1120
 2nd rack travel in: 4.00

Speed rpm : 1200...1230
4th rack travel in: 1350
Speed rpm : 0.00...1.00

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 275
Rack travel in mm : 6.3

Testing:

Speed rpm : 175
Minimum rack travel: 7.10
Speed rpm : 275
Rack travel in mm : 5.50...5.70
Rack travel in mm : 2.00
Speed rpm : 340...380

TORQUE CONTROL

Dimension a mm : -
Torque control curve - 1st version
1st speed rpm : 600
Rack travel in m: 11.30...11.50
2nd speed rpm : 1050
Rack travel in m: 11.30...11.60

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 1000
Rack travel mm : 11.90...12.00

Measurement

Speed 1/min : 500
1st pressure hPa : -
Rack travel in m: 8.70...9.10
2nd pressure hPa : 360
Rack travel in m: 11.10...11.20
3rd pressure hPa : 160
Rack travel in m: 9.50...9.90

START CUT-OUT

Speed 1/min : 195 (215)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000
Speed rpm : 1050
Del.quantity cm³/ : 214.0...220.0
1000 s: (211.0...223.0)
Aneroid pressure h: -
Speed rpm : 500

Del.quantity cm³/ : 107.0...109.0
1000 s: (104.0...112.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 10.90
Speed rpm : 1105...1120

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 135.0...165.0
1000 s: (131.0...169.0)

LOW IDLE

Speed rpm : 275
Rack travel in mm : 5.40...5.90
Del.quantity cm³/ : 26.0...30.0
1000 s: (23.0...33.0)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks:

:
Setting and blocking of pointer of
start-of-delivery sensor on cyl. 1
start of delivery

APPLICATION

Omnibus

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 11,7 j 2
 Edition : 31.07.92
 Replaces : 08.91
 Test oil : ISO-4113
 Combination no. : 0 402 046 825
 Injection pump
 Pump designation : PES6P110A720LS3282
 EP type number : 0 412 016 736
 Governor
 Governor design. : RQ300/1100PA800-2
 Governor no. : 0 421 801 593

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM447 h

1st version kW : 157.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test Lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 4.40...4.50
 : (4.35...4.55)
 Rack travel in mm : 19.00...21.00
 Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 13.10...13.20

Del.quantity cm³/ : 13.6...13.8

100 s: (13.3...14.0)

Spread cm³ : 0.4

100 s: (0.8)

2nd speed rpm : 300.0
 Rack travel in mm : 9.0...9.3
 Del.quantity cm³/ : 1.4...2.0
 100 s: (1.1...2.3)

Spread cm³ : 0.4
 100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 600
 Rack travel in mm : 13.50...14.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1100
 Del.quantity : 136.0...138.0
 1000 : (133.5...140.5)
 Spread cm³ : 4.00
 1000 : (8.00)

RATED SPEED

1st version
 Setting point:
 Speed rpm : 600
 Rack travel in mm : 14.0

Testing:
 1st rack travel in: 12.10
 Speed rpm : 1140...1150

2nd rack travel in: 4.00
Speed rpm : 1190...1220
4th rack travel in: 1250
Speed rpm : 0.00...2.40

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 7.3

Testing:

Speed rpm : 200
Minimum rack trave: 8.80
Speed rpm : 300
Rack travel in mm : 7.20...7.40
Rack travel in mm : 2.00
Speed rpm : 370...410

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 600
Del.quantity cm3/ : 113.0...116.0
1000 s: (110.0...119.0)
Spread cm3 : 5.00
1000 s: (9.00)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.10
Speed rpm : 1140...1150

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 11,7 j-3
 Edition : 31.07.92
 Replaces : 08.91
 Test oil : ISO-4113
 Combination no. : 0 402 046 826
 Injection pump
 Pump designation : PES6P110A720LS3282
 EP type number : 0 412 016 736
 Governor
 Governor design. : RQ300/1100PA786-2
 Governor no. : 0 421 801 576

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM447 h

1st version kW : 157.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 4.40...4.50
 : (4.35...4.55)
 Rack travel in mm : 19.00...21.00
 Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 1100
 Rack travel in mm : 13.00...13.10
 Del.quantity cm³/ : 13.6...13.8
 100 s: (13.3...14.0)
 Spread cm³ : 0.4
 100 s: (0.8)

2nd speed rpm : 300.0
 Rack travel in mm : 9.0...9.3
 Del.quantity cm³/ : 1.4...2.0
 100 s: (1.1...2.3)
 Spread cm³ : 0.4
 100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 600
 Rack travel in mm : 13.50...14.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1100
 Del.quantity : 136.0...138.0
 1000 : (133.5...140.5)
 Spread cm³ : 4.00
 1000 : (8.00)

RATED SPEED

1st version
 Setting point:
 Speed rpm : 600
 Rack travel in mm : 14.0

Testing:
 1st rack travel in: 12.00
 Speed rpm : 1140...1150

2nd rack travel in: 4.00
Speed rpm : 1190...1220
4th rack travel in: 1250
Speed rpm : 0.00...2.40

LOW IDLE 1
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 7.3

Testing:
Speed rpm : 200
Minimum rack trave: 8.80
Speed rpm : 300
Rack travel in mm : 7.20...7.40
Rack travel in mm : 2.00
Speed rpm : 370...410

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 600
Del.quantity cm3/ : 113.0...116.0
1000 s: (110.0...119.0)
Spread cm3 : 5.00
1000 s: (9.00)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 12.00
Speed rpm : 1140...1150

Remarks:
:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : RVI 9,8 q
 Edition : 23.10.92
 Replaces : 08.92
 Test oil : ISO-4113
 Combination no. : 0 402 046 827
 Injection pump
 Pump designation : PES6P120A320RS3284
 EP type number : 0 412 026 749
 Governor
 Governor design. : RQ275/1050PA999-3
 Governor no. : 0 421 801 598

Customer-spec. information
 Customer : RVI

Engine : MIDR/PR 062045
 1st version kW : 186.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 025
 Inlet press., bar : 1.50
 Test nozzle holder
 assembly : 1 688 901 105
 Opening
 pressure, bar : 207...210
 Orifice plate
 diameter mm : 0,8
 Test Lines : 1 680 750 089

Outside diameter
 x Wall thickness
 x Length mm : 8.00X2.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 3.50...3.60
 : (3.45...3.65)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 700
 Rack travel in mm : 10.10...10.20
 Del.quantity cm3/ : 14.8...15.0
 100 s: (14.5...15.3)
 Spread cm3 : 0.5
 100 s: (0.9)

2nd speed rpm : 275.0
 Rack travel in mm : 4.6...5.0
 Del.quantity cm3/ : 1.9...2.3
 100 s: (1.6...2.6)
 Spread cm3 : 0.8
 100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -2
 Speed rpm : 600
 Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 700
 Aneroid pressure h: 1000
 Del.quantity : 148.0...150.0
 1000 : (145.0...153.0)
 Spread cm3 : 5.00
 1000 : (9.00)

RATED SPEED

1st version
 Setting point:
 Speed rpm : 600
 Rack travel in mm : 20.0

Testing:
 1st rack travel in: 9.10
 Speed rpm : 1130...1145
 2nd rack travel in: 4.00

Speed rpm : 1200...1230
4th rack travel in: 1350
Speed rpm : 0.00...1.00

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 275
Rack travel in mm : 5.3

Testing:

Speed rpm : 200
Minimum rack travel: 6.30
Speed rpm : 275
Rack travel in mm : 4.70...4.90
Rack travel in mm : 2.00
Speed rpm : 320...360

TORQUE CONTROL

Dimension a mm : -
Torque control curve - 1st version
1st speed rpm : 700
Rack travel in m: 10.50...10.60
2nd speed rpm : 1050
Rack travel in m: 10.40...10.60

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 1000
Rack travel mm : 10.10...10.20

Measurement

Speed 1/min : 500
1st pressure hPa : -
Rack travel in m: 8.00...8.10
2nd pressure hPa : 200
Rack travel in m: 8.50...8.60
3rd pressure hPa : 360
Rack travel in m: 9.40...9.80

START CUT-OUT

Speed 1/min : 195 (215)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000
Speed rpm : 1050
Del.quantity cm³/ : 146.0...152.0
1000 s: (143.0...155.0)
Aneroid pressure h: -
Speed rpm : 500

Del.quantity cm³/ : 79.0...81.0
1000 s: (76.0...84.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 9.10
Speed rpm : 1130...1145

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 155.0...185.0
1000 s: (151.0...189.0)

LOW IDLE

Speed rpm : 275
Rack travel in mm : 4.60...5.00
Del.quantity cm³/ : 19.0...23.0
1000 s: (16.0...26.0)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks:

:
Setting and blocking of pointer of
start-of-delivery sensor on cyl. 1
start of delivery

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : SAK
 Edition : 26.06.92
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 402 046 834
 Injection pump
 Pump designation : PES6P130A32ORS3299
 EP type number : 0 412 036 706
 Governor
 Governor design. : RQV450...1500PA1023
 Governor no. : 0 421 813 985

Customer-spec. information
 Customer : SEATEK

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 419 992 198
 Inlet press., bar : 1.50
 Test nozzle holder
 assembly : 1 688 901 019
 Opening
 pressure, bar : 207...210
 Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 075
 Outside diameter
 x Wall thickness
 x Length mm : 8.00X2.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27
 Prestroke mm : 6.00...6.10
 : (5.95...6.15)
 Rack travel in mm : 10.00...11.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1500
 Rack travel in mm : 10.70...10.80
 Del. quantity cm³/ : 27.3...27.6
 100 s: (27.3...27.6)
 Spread cm³ : 0.6
 100 s: (1.0)

2nd speed rpm : 450.0
 Rack travel in mm : 3.2...3.6
 Del. quantity cm³/ : 2.5...3.3
 100 s: (2.1...3.5)
 Spread cm³ : 1.0
 100 s: (1.4)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1500
 travel mm : 8.10...8.30
 2nd speed rpm : 450
 travel mm : 0.80...1.20
 3rd speed rpm : 700
 travel mm : 2.80...3.40
 4th speed rpm : 1050
 travel mm : 4.60...5.00

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 1700
 Rack travel in mm : 7.70...10.30

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1500
 Aneroid pressure h: 900
 Del. quantity : 273.0...276.0
 1000 : (273.0...276.0)
 Spread cm³ : 6.00
 1000 : (10.00)

RATED SPEED

1st version

Control lever
position degrees: 100...108

Testing:
1st rack travel in: 9.70
Speed rpm : 1540...1550
2nd rack travel in: 4.00
Speed rpm : 1640...1670
4th rack travel in: 1750
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 65...73

Testing:
Speed rpm : 100
Minimum rack travel: 4.90
Speed rpm : 450
Rack travel in mm : 3.30...3.50

CONSTANT REGULATION
Speed rpm : 450...550

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 700
Pressure hPa : 900
Rack travel mm : 10.70...10.80

Measurement
Speed 1/min : 700

1st pressure hPa : -
Rack travel in m: 7.00...7.20
2nd pressure hPa : 450
Rack travel in m: 8.70...8.80
3rd pressure hPa : 390
Rack travel in m: 7.90...8.10

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: -
Speed rpm : 700
Del. quantity cm³/ : 157.0...160.0
1000 s: (153.5...163.5)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 9.70

Speed rpm : 1540...1550

Remarks:

APPLICATION :

Navy

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : IHC
 Edition : 15.06.93
 Replaces : 02.93
 Test oil : ISO-4113

Combination no. : 0 402 046 839

Injection pump
 Pump designation : PES6P100A320LS3306
 EP type number : 0 412 006 703
 Governor
 Governor design. : RQV350...1200PA1042
 -1K
 Governor no. : 0 421 815 322

Customer-spec. information
 Customer : NAVISTAR

Engine : DTA-466

1st version kW : 172.0
 Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 058

Inlet press., bar : 2.80

Overflow
 quantity min. 1/h: 240...260

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

Prestroke mm : 2.95...3.05
 : (2.90...3.10)

Rack travel in mm : 14.00...17.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 800

Rack travel in mm : 13.90...14.00

Del.quantity cm³/ : 15.5...15.7
 100 s: (15.3...15.9)

Spread cm³ : 0.8
 100 s: (1.2)

2nd speed rpm : 350.0
 Rack travel in mm : 5.9...6.1
 Del.quantity cm³/ : 1.5...1.9
 100 s: (1.3...2.2)

Spread cm³ : 0.4
 100 s: (0.6)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 350
 travel mm : 1.80...2.00

2nd speed rpm : 500
 travel mm : 3.50...3.90

3rd speed rpm : 800
 travel mm : 6.20...6.60

4th speed rpm : 1250
 travel mm : 9.30...9.50

5th speed rpm : 1400
 travel mm : 10.50...11.00

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1

Speed rpm : 1440
 Rack travel in mm : 7.00...13.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 800
Aneroid pressure h: 1200
Del. quantity : 155.5...157.5
1000 : (153.5...159.5)
Spread cm³ : 8.00
1000 : (12.00)

RATED SPEED

1st version
Control lever
position degrees: 116...124

Testing:
1st rack travel in: 13.30
Speed rpm : 1240...1270
2nd rack travel in: 4.00
Speed rpm : 1415...1425
4th rack travel in: 1550
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 74...82

Testing:
Speed rpm : 275
Minimum rack travel: 7.70
Speed rpm : 350
Rack travel in mm : 5.90...6.10

CONSTANT REGULATION
Speed rpm : 350...520

TORQUE CONTROL
Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 800
Rack travel in m: 13.90...14.00
2nd speed rpm : 1200
Rack travel in m: 14.10...14.30
3rd speed rpm : 650
Rack travel in m: 13.30...13.70

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 1200
Pressure hPa : 1200
Rack travel mm : 14.10...14.30

Measurement
Speed 1/min : 1200

1st pressure hPa : -

J27

Rack travel in m: 10.30...10.70
2nd pressure hPa : 310
Rack travel in m: 11.20...11.30
3rd pressure hPa : 655
Rack travel in m: 13.00...13.40

START CUT-OUT

Speed 1/min : 280 (290)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1200
Speed rpm : 1200
Del. quantity cm³/ : 162.5...166.5
1000 s: (160.5...168.5)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 800
Del. quantity cm³/ : 70.5...74.5
1000 s: (68.5...76.5)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 13.30
Speed rpm : 1240...1270

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 120.0...160.0
1000 s: (115.0...165.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.90...6.10
Del. quantity cm³/ : 15.5...19.5
1000 s: (13.0...22.0)
Spread cm³ : 4.00
1000 s: (6.50)

Remarks: : NAVISTAR #1819914C91

Bow dimension:
Sliding-sleeve position = 37.0 mm
Setting and blocking of pointer of
start-of-delivery sensor on cyl. 1
start of delivery

Delivery-valve spring pre-tension =
6.30...6.40 mm.
Permissible alteration from 6.00...6.70
mm



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : IHC
 Edition : 15.06.93
 Replaces : 04.93
 Test oil : ISO-4113

Combination no. : 0 402 046 841

Injection pump
 Pump designation : PES6P100A320LS3309
 EP type number : 0 412 006 704
 Governor
 Governor design. : RQV350...1300PA1042
 -4K
 Governor no. : 0 421 815 328

Customer-spec. information
 Customer : NAVISTAR

Engine : DTA-408

1st version kW : 171.0
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 058

Inlet press., bar : 2.80

Overflow
 quantity min. 1/h: 175...195

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X3.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

Prestroke mm : 2.95...3.05
 : (2.90...3.10)
 Rack travel in mm : 14.00...17.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 900

Rack travel in mm : 12.50...12.60

Del. quantity cm³/ : 14.4...14.6

100 s: (14.2...14.8)

Spread cm³ : 0.8

100 s: (1.2)

2nd speed rpm : 350.0

Rack travel in mm : 5.1...5.3

Del. quantity cm³/ : 1.4...1.8

100 s: (1.2...2.1)

Spread cm³ : 0.4

100 s: (0.6)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 350
 travel mm : 1.60...2.00

2nd speed rpm : 500
 travel mm : 3.80...4.20

3rd speed rpm : 800
 travel mm : 5.80...6.20

4th speed rpm : 1300
 travel mm : 8.90...9.10

5th speed rpm : 1500
 travel mm : 10.40...10.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 900
 Aneroid pressure h: 1200
 Del. quantity : 144.5...146.5
 1000 : (142.5...148.5)

Spread cm3 : 8.00
1000 : (12.00)

RATED SPEED

1st version
Control lever
position degrees: 61...69

Testing:
1st rack travel in: 11.90
Speed rpm : 1340...1370
2nd rack travel in: 4.00
Speed rpm : 1510...1520
4th rack travel in: 1650
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 16...24

Testing:
Speed rpm : 275
Minimum rack travel: 6.50
Speed rpm : 350
Rack travel in mm : 5.10...5.30

CONSTANT REGULATION

Speed rpm : 350...520

TORQUE CONTROL

Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 900
Rack travel in m: 12.50...12.60
2nd speed rpm : 1300
Rack travel in m: 12.90...13.10
3rd speed rpm : 700
Rack travel in m: 11.80...12.20

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 1300
Pressure hPa : 1200
Rack travel mm : 12.90...13.10

Measurement

Speed 1/min : 1300

1st pressure hPa : -
Rack travel in m: 9.30...9.70
2nd pressure hPa : 300
Rack travel in m: 10.50...10.60
3rd pressure hPa : 670
Rack travel in m: 11.80...12.20

START CUT-OUT

Speed 1/min : 280 (290)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1200
Speed rpm : 1300
Del.quantity cm3/ : 147.5...151.5
1000 s: (145.5...153.5)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 900
Del.quantity cm3/ : 75.5...79.5
1000 s: (73.5...81.5)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.90
Speed rpm : 1340...1370

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 120.0...160.0
1000 s: (115.0...165.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.10...5.30
Del.quantity cm3/ : 14.5...18.5
1000 s: (12.0...21.0)
Spread cm3 : 4.00
1000 s: (6.50)

Remarks:

: NAVISTAR #1819917C91

Limit shutoff stop screw to 1.0 mm.

Bow dimension:

Sliding-sleeve position = 37.0 mm
Setting and blocking of pointer of
start-of-delivery sensor on cyl. 1
start of delivery

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : NAV
 Edition : 15.06.93
 Replaces : 04.93
 Test oil : ISO-4113
 Combination no. : 0 402 046 842
 Injection pump
 Pump designation : PES6P100A320LS3309
 EP type number : 0 412 006 704
 Governor
 Governor design. : RQV350...1300PA1042
 -5K
 Governor no. : 0 421 815 329

Customer-spec. information
 Customer : NAVISTAR

Engine : DTA-408

1st version kW : 156.5
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 058

Inlet press., bar : 2.80

Overflow
 quantity min. 1/h: 240...260

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X3.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

Prestroke mm : 2.95...3.05
 : (2.90...3.10)
 Rack travel in mm : 14.00...15.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 900

Rack travel in mm : 12.40...12.50

Del. quantity cm³/ : 14.3...14.5

100 s: (14.1...14.7)

Spread cm³ : 0.8

100 s: (1.2)

2nd speed rpm : 350.0

Rack travel in mm : 5.1...5.3

Del. quantity cm³/ : 1.4...1.8

100 s: (1.2...2.1)

Spread cm³ : 0.4

100 s: (0.6)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 350
 travel mm : 1.60...2.00

2nd speed rpm : 500
 travel mm : 3.80...4.20

3rd speed rpm : 800
 travel mm : 5.80...6.20

4th speed rpm : 1300
 travel mm : 8.90...9.10

5th speed rpm : 1500
 travel mm : 10.40...10.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 900
 Aneroid pressure h: 1200
 Del. quantity : 143.5...145.5
 1000 : (141.5...147.5)

Spread cm³ : 8.00
1000 : (12.00)

RATED SPEED

1st version
Control lever
position degrees: 59...67

Testing:

1st rack travel in: 11.80
Speed rpm : 1340...1370
2nd rack travel in: 4.00
Speed rpm : 1510...1520
4th rack travel in: 1650
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 16...24

Testing:

Speed rpm : 275
Minimum rack travel: 6.00
Speed rpm : 350
Rack travel in mm : 5.10...5.30

CONSTANT REGULATION

Speed rpm : 350...520

TORQUE CONTROL

Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 900
Rack travel in m: 12.40...12.50
2nd speed rpm : 1300
Rack travel in m: 12.80...13.00
3rd speed rpm : 700
Rack travel in m: 11.80...12.20

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 1300
Pressure hPa : 1200
Rack travel mm : 12.80...13.00

Measurement

Speed 1/min : 1300
1st pressure hPa : -
Rack travel in m: 9.30...9.70
2nd pressure hPa : 290
Rack travel in m: 10.40...10.50
3rd pressure hPa : 700
Rack travel in m: 11.80...12.20

START CUT-OUT

Speed 1/min : 280 (290)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200
Speed rpm : 1300
Del.quantity cm³/ : 149.0...153.0
1000 s: (147.0...155.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 900
Del.quantity cm³/ : 75.5...79.5
1000 s: (73.5...81.5)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 11.80
Speed rpm : 1340...1370

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 120.0...160.0
1000 s: (115.0...165.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.10...5.30
Del.quantity cm³/ : 14.5...18.5
1000 s: (12.0...21.0)
Spread cm³ : 4.00
1000 s: (6.50)

Remarks:

: NAVISTAR #1819918C91

Limit shutoff stop screw to 1.0 mm.

Bow dimension:

Sliding-sleeve position = 37.0 mm
Setting and blocking of pointer of
start-of-delivery sensor on cyl. 1
start of delivery

Delivery-valve spring pre-tension =
6.30...6.40 mm.

Permissible alteration from 6.00...6.70

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : IHC
 Edition : 15.06.93
 Replaces : 02.93
 Test oil : ISO-4113
 Combination no. : 0 402 046 845
 Injection pump
 Pump designation : PES6P100A320LS3309
 EP type number : 0 412 006 704
 Governor
 Governor design. : RQV350...1300PA1042
 -6K
 Governor no. : 0 421 815 330

Customer-spec. information
 Customer : NAVISTAR

Engine : DTA-408

1st version kW : 142.0
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 058
 Inlet press., bar : 2.80
 Overflow
 quantity min. 1/h: 240...260
 Test nozzle holder
 assembly : 1 688 901 101
 Opening
 pressure, bar : 207...210
 Orifice plate
 diameter mm : 0,6
 Test lines : 1 680 750 015
 Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 22...24
 Prestroke mm : 2.95...3.05
 : (2.90...3.10)
 Rack travel in mm : 14.00...17.00
 Firing order : 1- 5- 3- 6- 2- 4
 Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 900
 Rack travel in mm : 12.10...12.20
 Del.quantity cm³/ : 13.2...13.4
 100 s: (13.0...13.6)
 Spread cm³ : 0.8
 100 s: (1.2)
 2nd speed rpm : 350.0
 Rack travel in mm : 5.1...5.3
 Del.quantity cm³/ : 1.4...1.8
 100 s: (1.2...2.1)
 Spread cm³ : 0.4
 100 s: (0.6)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 350
 travel mm : 1.60...2.00
 2nd speed rpm : 500
 travel mm : 3.80...4.20
 3rd speed rpm : 800
 travel mm : 5.80...6.20
 4th speed rpm : 1300
 travel mm : 8.90...9.10
 5th speed rpm : 1500
 travel mm : 10.40...10.80

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 1500
 Rack travel in mm : 8.00...14.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 900
Aneroid pressure h: 1200
Del.quantity : 132.5...134.5
1000 : (130.5...136.5)
Spread cm3 : 8.00
1000 : (12.00)

RATED SPEED

1st version

Control lever
position degrees: 112...120

Testing:

1st rack travel in: 11.40
Speed rpm : 1340...1370
2nd rack travel in: 4.00
Speed rpm : 1500...1510
4th rack travel in: 1650
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 71...79

Testing:

Speed rpm : 275
Minimum rack travel: 6.70
Speed rpm : 350
Rack travel in mm : 5.10...5.30

CONSTANT REGULATION

Speed rpm : 350...520

TORQUE CONTROL

Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 900
Rack travel in m: 12.10...12.20
2nd speed rpm : 1300
Rack travel in m: 12.40...12.60
3rd speed rpm : 700
Rack travel in m: 11.40...11.80

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 1300
Pressure hPa : 1200
Rack travel mm : 12.40...12.60

Measurement

Speed 1/min : 1300

1st pressure hPa : -

K07

Rack travel in m: 9.40...9.80
2nd pressure hPa : 250
Rack travel in m: 10.30...10.40
3rd pressure hPa : 300
Rack travel in m: 11.60...12.00

START CUT-OUT

Speed 1/min : 280 (290)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200
Speed rpm : 1300
Del.quantity cm3/ : 139.0...143.0
1000 s: (137.0...145.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 900
Del.quantity cm3/ : 76.5...80.5
1000 s: (74.5...82.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.40
Speed rpm : 1340...1370

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 120.0...160.0
1000 s: (115.0...165.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.10...5.30
Del.quantity cm3/ : 14.5...18.5
1000 s: (12.0...21.0)
Spread cm3 : 4.00
1000 s: (6.50)

Remarks:

: NAVISTAR #1819922C91

Bow dimension:

Sliding-sleeve position = 37.0 mm
Setting and blocking of pointer of
start-of-delivery sensor on cyl. 1
start of delivery

Delivery-valve spring pre-tension =
6.30...6.40 mm.
Permissible alteration from 6.00...6.70
mm



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE
 Edition : 15.06.93
 Replaces : 04.93
 Test oil : ISO-4113
 Combination no. : 0 402 076 059
 Injection pump
 Pump designation : PES6P110A720RS370
 EP type number : 0 412 016 052
 Governor
 Governor design. : RSV500...900POA455-5
 Governor no. : 0 421 833 400

Customer-spec. information
 Customer : JOHN DEERE

Engine : 6619T F01

1st version kw : 200.0
 Rated speed : 1800

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 457 413 010

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X3.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 2.75...2.85
 : (2.70...2.90)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 900
 Rack travel in mm : 10.20...10.30
 Del. quantity cm³/ : 12.3...12.5
 100 s: (12.1...12.7)
 Spread cm³ : 0.4
 100 s: (0.6)

2nd speed rpm : 500.0
 Rack travel in mm : 5.6...5.8
 Del. quantity cm³/ : 1.5...1.9
 100 s: (1.3...2.2)
 Spread cm³ : 0.6
 100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...0.70

Governor spring pre-tension
 Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 900
 Del. quantity : 123.5...125.5
 1000 : (121.5...127.5)
 Spread cm³ : 4.00
 1000 : (6.50)

RATED SPEED

1st version
 Control lever
 position degrees: 44...52

Testing:
 1st rack travel in: 9.20

Speed rpm : 945...955
2nd rack travel in: 4.00
Speed rpm : 1040...1050
3rd rack travel in: 4.00
Speed rpm : 1045...1075
4th rack travel in: 1200
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 30...38
Setting point w/out bumper spring
Speed rpm : 500
Rack travel in mm : 5.2

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 500
Rack travel in mm : 5.60...5.80

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 900
Rack travel in m: 10.20...10.30
2nd speed rpm : 650
Rack travel in m: 10.80...11.00

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 650
Del.quantity cm³/ : 138.5...142.5
1000 s: (136.5...144.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.20
Speed rpm : 945...955

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 180.0...200.0
1000 s: (175.0...205.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 500
Rack travel in mm : 5.60...5.80
Del.quantity cm³/ : 15.5...19.5
1000 s: (13.0...22.0)

Spread cm³ : 6.00
1000 s: (8.00)

Remarks:

: JOHN DEERE # AR88760
Starting/full-load transition speed
from holding magnet = 450 1/min.

Start-of-delivery mark is at 15°
angular displacement of the cam after
start of delivery at cylinder 1 with
control-rod travel 9.00...12.00 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE
 Edition : 15.06.93
 Replaces : 01.93
 Test oil : ISO-4113

Combination no. : 0 402 076 745

Injection pump
 Pump designation : PES6P120A720RS3203
 EP type number : 0 412 026 728
 Governor
 Governor design. : RSV625...1100P2A534
 -9

Governer no. : 0 421 833 372

Customer-spec. information
 Customer : JOHN DEERE

Engine : 6076 HZ 031

1st version kW : 205.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 457 413 010

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test Lines : 1 680 750 015

Outside diameter
 x Wall thickness : 6.00X3.00X600
 x Length mm

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 27...29

Prestroke mm : 3.55...3.65
 : (3.50...3.70)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 12.70...12.80

Del.quantity cm³/ : 17.4...17.6

100 s : (17.2...17.8)

Spread cm³ : 0.4

100 s : (0.6)

2nd speed rpm : 625.0

Rack travel in mm : 5.4...5.6

Del.quantity cm³/ : 2.7...3.1

100 s : (2.4...3.3)

Spread cm³ : 0.6

100 s : (0.8)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 4.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Aneroid pressure h: 1200

Del.quantity : 174.5...176.5

1000 : (172.5...178.5)

Spread cm³ : 4.00

1000 : (6.50)

RATED SPEED

1st version

Control Lever

position degrees: 42...50

Testing:
1st rack travel in: 11.70
Speed rpm : 1140...1150
2nd rack travel in: 4.00
Speed rpm : 1205...1215
3rd rack travel in: 4.00
Speed rpm : 1195...1225
4th rack travel in: 1350
Speed rpm : 0.30...1.40

LOW IDLE 1
Control lever
position degrees: 22...30
Setting point w/out bumper spring
Speed rpm : 625
Rack travel in mm : 5.0

Testing:
Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 625
Rack travel in mm : 5.40...5.60

TORQUE CONTROL
Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 12.70...12.80
2nd speed rpm : 700
Rack travel in m: 13.30...13.50

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 1200
Rack travel mm : 13.30...13.50

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 11.60...11.80
2nd pressure hPa : 645
Rack travel in m: 12.10...12.20
3rd pressure hPa : 840
Rack travel in m: 12.90...13.30

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1200
Speed rpm : 700
Del.quantity cm³/ : 187.0...191.0
1000 s: (185.0...193.0)
Aneroid pressure h: -
Speed rpm : 800

Del.quantity cm³/ : 143.0...147.0
1000 s: (141.0...149.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11.70
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 90.0...110.0
1000 s: (85.0...115.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 625
Rack travel in mm : 5.40...5.60
Del.quantity cm³/ : 27.0...31.0
1000 s: (24.5...33.5)
Spread cm³ : 6.00
1000 s: (8.00)

Remarks:

: JOHN DEERE # RE47399

Adjustment without torque-control
spring retainer with 0,5 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

Starting/full-load transition speed
from holding magnet = 450 1/min.

Start-of-delivery mark at 10° cam
rotation angle after start of delivery,
cylinder 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE
 Edition : 15.06.93
 Replaces : 01.93
 Test oil : ISO-4113
 Combination no. : 0 402 076 754
 Injection pump
 Pump designation : PES6P120A720RS3203
 EP type number : 0 412 026 728
 Governor
 Governor design. : RSV400...1100P2A534
 -14
 Governor no. : 0 421 833 405

Customer-spec. information
 Customer : JOHN DEERE

Engine : 6076 HFO30

1st version kW : 205.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 457 413 010
 Inlet press., bar : 1.50
 Test nozzle holder
 assembly : 1 688 901 101
 Opening
 pressure, bar : 207...210
 Orifice plate
 diameter mm : 0,6
 Test lines : 1 680 750 015
 Outside diameter
 x Wall thickness
 x Length mm : 6.00x3.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 27...29

Prestroke mm : 3.55...3.65
 : (3.50...3.70)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100
 Rack travel in mm : 12.50...12.60
 Del. quantity cm³/ : 16.8...17.0
 100 s: (16.6...17.2)
 Spread cm³ : 0.4
 100 s: (0.6)

2nd speed rpm : 400.0
 Rack travel in mm : 5.2...5.4
 Del. quantity cm³/ : 2.0...2.4
 100 s: (1.8...2.6)
 Spread cm³ : 0.6
 100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...0.70

Governor spring pre-tension
 Click setting x : 2.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1100
 Aneroid pressure h: 1200
 Del. quantity : 168.0...170.0
 1000 : (166.0...172.0)
 Spread cm³ : 4.00
 1000 : (6.50)

RATED SPEED

1st version
 Control lever
 position degrees: 36...44

Testing:

1st rack travel in: 11.50
Speed rpm : 1140...1150
2nd rack travel in: 4.00
Speed rpm : 1185...1195
3rd rack travel in: 4.00
Speed rpm : 1185...1215
4th rack travel in: 1300
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 12...20
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 4.8

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 400
Rack travel in mm : 5.20...5.40

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 12.50...12.60
2nd speed rpm : 750
Rack travel in m: 12.90...13.10

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 1200
Rack travel mm : 12.90...13.10

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.50...10.70
2nd pressure hPa : 560
Rack travel in m: 11.10...11.20
3rd pressure hPa : 770
Rack travel in m: 12.20...12.60

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200
Speed rpm : 750
Del.quantity cm³/ : 174.5...178.5
1000 s: (172.5...180.5)
Aneroid pressure h: -
Speed rpm : 800

Del.quantity cm³/ : 117.5...121.5
1000 s: (114.5...124.5)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11.50
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 90.0...110.0
1000 s: (85.0...115.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 400
Rack travel in mm : 5.20...5.40
Del.quantity cm³/ : 20.0...24.0
1000 s: (18.0...26.0)
Spread cm³ : 6.00
1000 s: (8.00)

Remarks:

: JOHN DEERE # RE47410

Adjustment without torque-control
spring retainer with 0,5 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

Starting/full-load transition speed
from holding magnet = 450 1/min.

Start-cf-delivery mark at 10° cam
rotation angle after start of delivery,
cylinder 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : NAV
 Edition : 15.06.93
 Replaces : 04.93
 Test oil : ISO-4113

Combination no. : 0 402 076 755

Injection pump
 Pump designation : PES6P110A320LS3318
 EP type number : 0 412 016 741
 Governor
 Governor design. : RSV350...750P4A561
 Governor no. : 0 421 833 406

Customer spec. information
 Customer : NAVISTAR

Engine : DTA-466

1st version kW : 185.0
 Rated speed : 1500

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 058

Inlet press., bar : 2.80

Overflow
 quantity min. 1/h: 175...195

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00x3.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 2.95...3.05
 : (2.90...3.10)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 12.50...12.60

Del. quantity cm³/ : 20.8...21.0
 100 s: (20.6...21.2)

Spread cm³ : 0.8
 100 s: (1.2)

2nd speed rpm : 350.0
 Rack travel in mm : 5.5...5.7
 Del. quantity cm³/ : 3.8...4.2
 100 s: (3.5...4.4)

Spread cm³ : 0.4
 100 s: (0.6)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension
 Click setting x : 2.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 700
 Del. quantity : 208.5...210.5
 1000 : (206.5...212.5)

Spread cm³ : 8.00
 1000 : (12.00)

RATED SPEED

1st version
 Control lever
 position degrees: 38...46

Testing:

1st rack travel in: 11.50
Speed rpm : 765...775
2nd rack travel in: 4.00
Speed rpm : 800...810
3rd rack travel in: 4.00
Speed rpm : 805...815
4th rack travel in: 900
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 18...26
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 5.6

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 350
Rack travel in mm : 5.50...5.70

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11.50
Speed rpm : 765...775

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm3/ : 135.0...175.0
1000 s: (130.0...180.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.50...5.70
Del. quantity cm3/ : 38.0...42.0
1000 s: (35.5...44.5)
Spread cm3 : 4.00
1000 s: (6.50)

Remarks:

: NAVISTAR #1820271C91

APPLICATION

Generator

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : NAV
 Edition : 15.06.93
 Replaces : 04.93
 Test oil : ISO-4113
 Combination no. : 0 402 076 755A
 Injection pump
 Pump designation : PES6P110A32OLS3318
 EP type number : 0 412 016 741
 Governor
 Governor design. : RSV350...750P4A561
 Governor no. : 0 421 833 406

Cust. part no. : 1820271C91A

Customer-spec. information
 Customer : NAVISTAR

Engine : DTA-466

1st version kW : 208.0
 Rated speed : 1500

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 058

Inlet press., bar : 2.80

Overflow
 quantity min. 1/h: 175...195

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X3.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 2.95...3.05
 : (2.90...3.10)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 850

Rack travel in mm : 12.50...12.60

Del. quantity cm³/ : 20.4...20.6

100 s: (20.2...20.8)

Spread cm³ : 0.8

100 s: (1.2)

2nd speed rpm : 350.0

Rack travel in mm : 5.5...5.7

Del. quantity cm³/ : 3.8...4.2

100 s: (3.5...4.4)

Spread cm³ : 0.4

100 s: (0.6)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 2.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 850

Del. quantity : 204.5...206.5

1000 : (202.5...208.5)

Spread cm³ : 8.00

1000 : (12.00)

RATED SPEED

1st version
Control lever
position degrees: 45...53

Testing:

1st rack travel in: 11.50
Speed rpm : 915...925
2nd rack travel in: 4.00
Speed rpm : 940...950
3rd rack travel in: 4.00
Speed rpm : 945...955
4th rack travel in: 1050
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 18...26
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 5.6

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 350
Rack travel in mm : 5.50...5.70

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.50
Speed rpm : 915...925

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 135.0...175.0
1000 s: (130.0...180.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.50...5.70
Del.quantity cm³/ : 38.0...42.0
1000 s: (35.5...44.5)
Spread cm³ : 4.00
1000 s: (6.50)

APPLICATION

Generator

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : NAV
 Edition : 15.06.93
 Replaces : 04.93
 Test oil : ISO-4113
 Combination no. : 0 402 076 756
 Injection pump
 Pump designation : PES6P100A320LS3317
 EP type number : 0 412 006 706
 Governor
 Governor design. : RSV350...1200P2A562
 Governor no. : 0 421 833 407

Customer-spec. information
 Customer : NAVISTAR

Engine : DTA-466

1st version kW : 204.0
 Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 058

Inlet press., bar : 2.80

Overflow
 quantity min. l/h: 175...195

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00x3.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 2.95...3.05
 : (2.90...3.10)
 Rack travel in mm : 9.00...12.00
 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1200

Rack travel in mm : 14.60...14.70

Del.quantity cm³/ : 17.5...17.7

100 s: (17.3...17.9)

Spread cm³ : 0.8

100 s: (1.2)

2nd speed rpm : 350.0

Rack travel in mm : 4.8...5.0

Del.quantity cm³/ : 1.6...2.0

100 s: (1.3...2.2)

Spread cm³ : 0.4

100 s: (0.6)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 4.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1200

Aneroid pressure h: 1500

Del.quantity : 175.5...177.5

1000 : (173.5...179.5)

Spread cm³ : 8.00

1000 : (12.00)

RATED SPEED

1st version

Control lever
position degrees: 53...61

Testing:

1st rack travel in: 13.60
Speed rpm : 1245...1255
2nd rack travel in: 4.00
Speed rpm : 1315...1325
3rd rack travel in: 4.00
Speed rpm : 1320...1330
4th rack travel in: 1400
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 14...22
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 4.9

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 350
Rack travel in mm : 4.80...5.00

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 1500
Rack travel mm : 14.60...14.70

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 7.50...7.90
2nd pressure hPa : 290
Rack travel in m: 9.50...9.60
3rd pressure hPa : 700
Rack travel in m: 12.80...13.20

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 67.5...71.5
1000 s: (65.5...73.5)

BREAKAWAY

1st version

K20

1mm rack travel less than

full load rack tr: 13.60
Speed rpm : 1245...1255

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 125.0...165.0
1000 s: (120.0...170.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 4.80...5.00
Del.quantity cm³/ : 16.0...20.0
1000 s: (13.5...22.5)
Spread cm³ : 4.00
1000 s: (6.50)

Remarks:

Delivery-valve spring pre-tension = 9C91
6.30...6.40 mm.
Permissible alteration from 6.00...6.70
mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : NAV
 Edition : 15.06.93
 Replaces : 04.93
 Test oil : ISO-4113

Combination no. : 0 402 076 756A

Injection pump
 Pump designation : PES6P100A320LS3317
 EP type number : 0 412 006 706
 Governor
 Governor design. : RSV350...1200P2A562
 Governor no. : 0 421 833 407

Cust. part no. : 1820269C91A

Customer-spec. information
 Customer : NAVISTAR

Engine : DTA-466

1st version kW : 185.0
 Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 058

Inlet press., bar : 2.80

Overflow
 quantity min. 1/h: 175...195

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X3.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 27...29

Prestroke mm : 2.95...3.05
 : (2.90...3.10)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1200

Rack travel in mm : 13.90...14.00

Del. quantity cm³/ : 16.0...16.2

100 s: (15.8...16.4)

Spread cm³ : 0.8

100 s: (1.2)

2nd speed rpm : 350.0

Rack travel in mm : 4.8...5.0

Del. quantity cm³/ : 1.6...2.0

100 s: (1.3...2.2)

Spread cm³ : 0.4

100 s: (0.6)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 4.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1200

Aneroid pressure h: 1500

Del. quantity : 160.0...162.0

1000 : (158.0...164.0)

Spread cm³ : 8.00

1000 : (12.00)

RATED SPEED

1st version
Control lever
position degrees: 53...61

Testing:

1st rack travel in: 12.90
Speed rpm : 1250...1260
2nd rack travel in: 4.00
Speed rpm : 1315...1325
3rd rack travel in: 4.00
Speed rpm : 1320...1330
4th rack travel in: 14.00
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 14...22
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 4.9

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 350
Rack travel in mm : 4.80...5.00

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 1500
Rack travel mm : 13.90...14.00

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 7.50...7.90
2nd pressure hPa : 270
Rack travel in m: 9.30...9.40
3rd pressure hPa : 640
Rack travel in m: 12.30...12.70

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -
Speed rpm : 500
Del. quantity cm³/ : 67.5...71.5
1000 s: (65.5...73.5)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 12.90
Speed rpm : 1250...1260

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 125.0...165.0
1000 s: (120.0...170.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 4.80...5.00
Del. quantity cm³/ : 16.0...20.0
1000 s: (13.5...22.5)
Spread cm³ : 4.00
1000 s: (6.50)

Delivery-valve spring pre-tension =
6.30...6.40 mm. :
Permissible alteration from 6.00...6.70
mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : NAV
 Edition : 15.06.93
 Replaces : 04.93
 Test oil : ISO-4113
 Combination no. : 0 402 076 756B
 Injection pump
 Pump designation : PES6P100A320LS3317
 EP type number : 0 412 006 706
 Governor
 Governor design. : RSV350...1200P2A562
 Governor no. : 0 421 833 407

Cust. part no. : 1820269C91B

Customer-spec. information
 Customer : NAVISTAR

Engine : DTA-466

1st version kw : 156.0
 Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 058

Inlet press., bar : 2.80

Overflow
 quantity min. 1/h: 175...195

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X3.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 2.95...3.05
 : (2.90...3.10)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1200

Rack travel in mm : 13.40...13.50

Del.quantity cm³/ : 14.7...14.9

100 s: (14.5...15.1)

Spread cm³ : 0.8

100 s: (1.2)

2nd speed rpm : 350.0

Rack travel in mm : 4.8...5.0

Del.quantity cm³/ : 1.6...2.0

100 s: (1.3...2.2)

Spread cm³ : 0.4

100 s: (0.6)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 4.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1200

Aneroid pressure h: 1500

Del.quantity : 147.0...149.0

1000 : (145.0...151.0)

Spread cm³ : 8.00

1000 : (12.00)

RATED SPEED

1st version
Control lever
position degrees: 53...61

Testing:

1st rack travel in: 12.40
Speed rpm : 1255...1265
2nd rack travel in: 4.00
Speed rpm : 1315...1325
3rd rack travel in: 4.00
Speed rpm : 1320...1330
4th rack travel in: 14.00
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 14...22
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 4.9

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 350
Rack travel in mm : 4.90...5.00

Aneroid/Altitude
Compensator Test

1st version

Setting

Speed rpm : 500
Pressure hPa : 1500
Rack travel mm : 13.40...13.50

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 7.50...7.90
2nd pressure hPa : 260
Rack travel in m: 9.20...9.30
3rd pressure hPa : 600
Rack travel in m: 12.00...12.40

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 67.5...71.5
1000 s: (65.5...73.5)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 12.40
Speed rpm : 1255...1265

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 125.0...165.0
1000 s: (120.0...170.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 4.80...5.00
Del.quantity cm³/ : 16.0...20.0
1000 s: (13.5...22.5)
Spread cm³ : 4.00
1000 s: (6.50)

Delivery-valve spring pre-tension =
6.30...6.40 mm. :
Permissible alteration from 6.00...6.70
mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : NAV
 Edition : 15.06.93
 Replaces : 04.93
 Test oil : ISO-4113
 Combination no. : 0 402 076 756C
 Injection pump
 Pump designation : PES6P100A320LS3317
 EP type number : 0 412 006 706
 Governor
 Governor design. : RSV350...1200P2A562
 Governor no. : 0 421 833 407

Cust. part no. : 1820269C91C

Customer-spec. information
 Customer : NAVISTAR

Engine : DTA-466

1st version kW : 145.0
 Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 058

Inlet press., bar : 2.80

Overflow
 quantity min. 1/h: 175...195

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X3.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 27...29
 Prestroke mm : 2.95...3.05
 : (2.90...3.10)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)
 Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1200
 Rack travel in mm : 12.80...12.90
 Del. quantity cm³/ : 13.5...13.7
 100 s: (13.3...13.9)
 Spread cm³ : 0.8
 100 s: (1.2)

2nd speed rpm : 350.0
 Rack travel in mm : 4.8...5.0
 Del. quantity cm³/ : 1.6...2.0
 100 s: (1.3...2.2)
 Spread cm³ : 0.4
 100 s: (0.6)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...0.70

Governor spring pre-tension
 Click setting x : 4.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1200
 Aneroid pressure h: 1500
 Del. quantity : 135.0...137.0
 1000 : (133.0...139.0)
 Spread cm³ : 8.00
 1000 : (12.00)

RATED SPEED

1st version
Control Lever
position degrees: 53...61

Testing:

1st rack travel in: 11.80
Speed rpm : 1260...1270
2nd rack travel in: 4.00
Speed rpm : 1315...1325
3rd rack travel in: 4.00
Speed rpm : 1320...1330
4th rack travel in: 1400
Speed rpm : 0.30...1.40

LOW IDLE 1

Control Lever
position degrees: 14...22
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 4.9

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 350
Rack travel in mm : 4.80...5.00

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 1500
Rack travel mm : 12.80...12.90

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 7.50...7.90
2nd pressure hPa : 240
Rack travel in m: 9.00...9.10
3rd pressure hPa : 530
Rack travel in m: 11.40...11.80

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 67.5...71.5
1000 s: (65.5...73.5)

BREAKAWAY

1st version
1mm rack travel Less than

full load rack tr: 11.80
Speed rpm : 1260...1270

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 125.0...165.0
1000 s: (120.0...170.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 4.80...5.00
Del.quantity cm³/ : 16.0...20.0
1000 s: (13.5...22.5)
Spread cm³ : 4.00
1000 s: (6.50)

Delivery-valve spring pre-tension =
6.30...6.40 mm. :
Permissible alteration from 6.00...6.70
mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : NAV
 Edition : 15.06.93
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 402 076 760
 Injection pump
 Pump designation : PES6P100A320LS3317
 EP type number : 0 412 006 706
 Governor
 Governor design. : RSV415...1100P2A570
 Governor no. : 0 421 833 420

Customer-spec. information
 Customer : NAVISTAR

Engine : DT-531

1st version kW : 145.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 058

Inlet press., bar : 2.80

Overflow
 quantity min. 1/h: 250...270

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00x3.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 2.95...3.05
 : (2.90...3.10)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 12.40...12.50

Del.quantity cm³/ : 12.8...13.0

100 s: (12.6...13.2)

Spread cm³ : 0.8

100 s: (1.2)

2nd speed rpm : 415.0

Rack travel in mm : 4.9...5.1

Del.quantity cm³/ : 2.0...2.4

100 s: (1.8...2.7)

Spread cm³ : 0.4

100 s: (0.6)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 4.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Aneroid pressure h: 1200

Del.quantity : 128.0...130.0

1000 : (126.0...132.0)

Spread cm³ : 8.00

1000 : (12.00)

RATED SPEED

1st version

Control lever
position degrees: 47...55

Testing:

1st rack travel in: 11.40
Speed rpm : 1145...1155
2nd rack travel in: 4.00
Speed rpm : 1195...1205
3rd rack travel in: 4.00
Speed rpm : 1200...1210
4th rack travel in: 1300
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 16...24
Setting point w/out bumper spring
Speed rpm : 415
Rack travel in mm : 5.0

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 415
Rack travel in mm : 4.90...5.10

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 1200
Rack travel mm : 13.10...13.20

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 8.00...8.40
2nd pressure hPa : 280
Rack travel in m: 9.40...9.50
3rd pressure hPa : 520
Rack travel in m: 11.40...11.80

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 74.5...78.5
1000 s: (72.5...80.5)

BREAKAWAY

1st version

K28

1mm rack travel less than

full load rack tr: 11.40
Speed rpm : 1145...1155

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 125.0...165.0
1000 s: (120.0...170.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 415
Rack travel in mm : 4.90...5.10
Del.quantity cm³/ : 20.5...24.5
1000 s: (18.0...27.0)
Spread cm³ : 4.00
1000 s: (6.50)

Remarks:

Delivery-valve spring pre-tension = 4091
6.30...6.40 mm.
Permissible alteration from 6.00...6.70
mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : NAV
 Edition : 02.07.93
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 402 076 761
 Injection pump
 Pump designation : PES6P100A320LS3317
 EP type number : 0 412 006 706
 Governor
 Governor design. : RSV415...1100P2A571
 Governor no. : 0 421 833 421

Customer-spec. information
 Customer : NAVISTAR

Engine : DT-531

1st version kW : 161.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 058
 Inlet press., bar : 2.80
 Overflow
 quantity min. 1/h: 250...270
 Test nozzle holder
 assembly : 1 688 901 101
 Opening
 pressure, bar : 207...210
 Lube oil : 6
 Test lines : 1 680 750 015
 Outside diameter
 x Wall thickness
 x Length mm : 6.00x3.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

L01

Test pressure, bar: 27...29
 Prestroke mm : 2.95...3.05
 : (2.90...3.10)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Phasing :
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100
 Rack travel in mm : 13.10...13.20
 Del. quantity cm³/ : 14.4...14.6
 100 s: (14.2...14.8)
 Spread cm³ : 0.8
 100 s: (1.2)

2nd speed rpm : 415.0
 Rack travel in mm : 4.9...5.1
 Del. quantity cm³/ : 2.0...2.4
 100 s: (1.8...2.7)
 Spread cm³ : 0.4
 100 s: (0.6)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...0.70

Governor spring pre-tension
 Click setting x : 5.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1100
 Aneroid pressure h: 1200
 Del. quantity : 144.0...146.0
 1000 : (142.0...148.0)
 Spread cm³ : 8.00
 1000 : (12.00)

RATED SPEED

1st version
 Control lever
 position degrees: 48...56

Testing:

1st rack travel in: 12.10
Speed rpm : 1145...1155
2nd rack travel in: 4.00
Speed rpm : 1195...1205
3rd rack travel in: 4.00
Speed rpm : 1200...1210
4th rack travel in: 1300
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 17...25
Setting point w/out bumper spring
Speed rpm : 415
Rack travel in mm : 5.0

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 415
Rack travel in mm : 4.90...5.10

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 1200
Rack travel mm : 13.10...13.20

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 8.00...8.40
2nd pressure hPa : 300
Rack travel in m: 9.40...9.50
3rd pressure hPa : 590
Rack travel in m: 11.80...12.20

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 74.5...78.5
1000 s: (72.5...80.5)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 12.10

L02

Speed rpm : 1145...1155

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 125.0...165.0
1000 s: (120.0...170.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 415
Rack travel in mm : 4.90...5.10
Del.quantity cm3/ : 20.5...24.5
1000 s: (18.0...27.0)
Spread cm3 : 4.00
1000 s: (6.50)

Remarks:

: NAVISTAR #1817593C91

Delivery-valve spring pre-tension =
6.30...6.40 mm.
Permissible alteration from 6.00...6.70
mm

APPLICATION

Tractor (tractor engines)

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 22,0 c
 Edition : 26.02.93
 Replaces : 06.92
 Test oil : ISO-4113
 Combination no. : 0 402 640 817
 Injection pump
 Pump designation : PE12P120A520LS7826
 EP type number : 0 412 620 817
 Governor
 Governor design. : RQV350...1150PA870-4
 Governor no. : 0 421 813 717

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM 444 LA

1st version kW : 736.0
 Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 419 992 198

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 150...170

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test Lines : 1 680 750 075

Outside diameter
 x Wall thickness
 x Length mm : 8.00x2.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.40...4.50
 : (4.35...4.55)
 Rack travel in mm : 19.00...21.00
 Firing order : 12- 1- 5- 9- 8- 3-
 4- 11- 10- 2- 6- 7

Phasing : 0-45-60-105-120-165-
 180-225-240-285-300-
 345

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 12

BASIC SETTING

1st speed rpm : 1150

Rack travel in mm : 15.10...15.20

Del.quantity cm³/ : 30.9...31.1

100 s: (30.6...31.4)

Spread cm³ : 0.6

100 s: (1.0)

2nd speed rpm : 350.0

Rack travel in mm : 5.3...5.9

Del.quantity cm³/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm³ : 0.8

100 s: (1.2)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 350
travel mm : 1.30...1.80

2nd speed rpm : 600
travel mm : 3.30...3.80

3rd speed rpm : 960
travel mm : 5.30...5.80

4th speed rpm : 1206
travel mm : 7.90...8.40

5th speed rpm : 1291
travel mm : 9.80...10.30

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1275

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1150
Aneroid pressure h: 1800
Del.quantity : 309.0...311.0
1000 : (306.0...314.0)
Spread cm³ : 6.00
1000 : (10.00)

2nd version

Speed rpm : 1150
Aneroid pressure h: 1800
Del.quantity cm³/ : 309.0...311.0
1000 s: (306.0...314.0)
Spread cm³ : 6.00
1000 s: (10.0)

RATED SPEED

1st version

Control lever
position degrees: 113...121

Testing:

1st rack travel in: 14.20
Speed rpm : 1190...1200
2nd rack travel in: 4.00
Speed rpm : 1270...1300
4th rack travel in: 1350
Speed rpm : 0.00...1.00

2nd version

Control lever
position degrees: 113...121

Testing:

1st rack travel in: 14.20
Speed rpm : 1190...1200
2nd rack travel in: 4.00
Speed rpm : 1270...1300
4th rack travel in: 1350
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 62...70

Testing:

Speed rpm : 250
Minimum rack trave: 7.30
Speed rpm : 350
Rack travel in mm : 5.30...5.90

CONSTANT REGULATION

Speed rpm : 350...600

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : -
Rack travel mm : 8.30...8.60

Measurement

Speed 1/min : 500

1st pressure hPa : 400

Rack travel in m: 10.00...10.10

2nd pressure hPa : 1050

Rack travel in m: 14.10...14.30

2th version

Setting
Speed rpm : 500
Pressure hPa : -
Rack travel in mm : 8.20...8.50

Measurement

Speed rpm : 500

1st pressure hPa : 300

Rack travel in m: 9.80...9.90

2nd pressure hPa : 1100

Rack travel in m: 14.0...14.2

START CUT-OUT

Speed 1/min : 310 (330)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1800
Speed rpm : 750
Del.quantity cm³/ : 303.0...313.0
1000 s: (300.0...316.0)
Spread cm³ : 10.00
1000 s: (15.0)

Aneroid pressure h: 1800
Speed rpm : 1150
Del.quantity cm³/ : 240.0...243.0 *
1000 s: (237.0...246.0)
Spread cm³ : 10.00
1000 s: (15.0)

Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 128.0...130.0
1000 s: (125.0...133.0)
Spread cm³ : 10.00
1000 s: (15.0)

2nd version

Aneroid pressure h: 1800
Speed rpm : 750
Del.quantity cm³/ : 303.0...313.0
1000 s: (300.0...316.0)

Spread cm³ : 10.00
1000 s: (15.0)
Aneroid pressure h: 1800
Speed rpm : 1150
Del.quantity cm³/ : 240.0...243.0 *
1000 s: (237.0...246.0)
Spread cm³ : 10.00
1000 s: (15.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 128.0...130.0
1000 s: (125.0...133.0)
Spread cm³ : 10.00
1000 s: (15.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 14.20
Speed rpm : 1190...1200

2nd version
1mm rack travel less than
full load rack tr: 14.20
Speed rpm : 1190...1200

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 330.0...350.0
1000 s: (326.0...354.0)

Remarks:

Values of version 1 only apply to regulators with LDA spring 2 424 619 162.

* = Set at reduced-delivery stop.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 22,0 c 2
 Edition : 31.07.92
 Replaces : 04.92
 Test oil : ISO-4113
 Combination no. : 0 402 640 828
 Injection pump
 Pump designation : PE12P120A520LS7826
 EP type number : 0 412 620 817
 Governor
 Governor design. : RQV350...1050PA870
 -13
 Governor no. : 0 421 813 934

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM 444 LA

1st version kW : 620.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 150...170

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.40...4.50
 : (4.35...4.55)
 Rack travel in mm : 19.00...21.00
 Firing order : 12- 1- 5- 9- 8- 3-
 4- 11- 10- 2- 6- 7

Phasing : 0-45-60-105-120-165-
 180-225-240-285-300-
 345

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 12

BASIC SETTING

1st speed rpm : 1050
 Rack travel in mm : 14.00...14.10
 Del.quantity cm³/ : 27.4...27.6
 100 s: (27.1...27.9)

Spread cm³ : 0.6
 100 s: (1.0)

2nd speed rpm : 350.0
 Rack travel in mm : 5.3...5.9
 Del.quantity cm³/ : 1.6...2.2
 100 s: (1.3...2.5)
 Spread cm³ : 0.8
 100 s: (1.2)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 350
 travel mm : 1.30...1.80
 2nd speed rpm : 570
 travel mm : 3.30...3.80
 3rd speed rpm : 900
 travel mm : 5.40...5.90
 4th speed rpm : 1107
 travel mm : 7.80...8.30
 5th speed rpm : 1204
 travel mm : 9.80...10.30

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 1150
 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050
Aneroid pressure h: 1800
Del.quantity : 274.0...276.0
1000 : (271.0...279.0)
Spread cm3 : 6.00
1000 : (10.00)

RATED SPEED

1st version

Control lever
position degrees: 114...122

Testing:

1st rack travel in: 13.00
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1170...1200
4th rack travel in: 1250
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 59...67

Testing:

Speed rpm : 250
Minimum rack trave: 7.30
Speed rpm : 350
Rack travel in mm : 5.50...5.70

CONSTANT REGULATION

Speed rpm : 350...600

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : -
Rack travel mm : 8.00...8.30

Measurement

Speed 1/min : 500
1st pressure hPa : 300
Rack travel in m: 9.40...9.50
2nd pressure hPa : 900
Rack travel in m: 12.70...12.90

START CUT-OUT

Speed 1/min : 310 (330)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1800
Speed rpm : 750
Del.quantity cm3/ : 268.0...272.0
1000 s: (265.0...275.0)
Spread cm3 : 10.00
1000 s: (15.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 124.0...126.0
1000 s: (121.0...129.0)
Spread cm3 : 10.00
1000 s: (15.0)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 13.00
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 330.0...350.0
1000 s: (326.0...354.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : SCA
 Edition : 22.01.93
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 402 646 600
 Injection pump
 Pump designation : PE6P120A72ORS7022
 EP type number : 0 412 626 873
 Governor
 Governor design. : RQV200...1000PA539
 -14
 Governor no. : 0 421 814 011
 Customer-spec. information
 Customer : SCANIA
 Engine : DS11 76

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 025
 Inlet press., bar : 1.50
 Test nozzle holder
 assembly : 1 688 901 104
 Opening
 pressure, bar : 250...253
 Orifice plate
 diameter mm : 0,7
 Test lines : 1 680 750 008
 Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27
 Prestroke mm : 4.40...4.50
 : (4.35...4.55)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)
 Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700
 Rack travel in mm : 10.90...11.00
 Del.quantity cm³/ : 16.8...17.0
 100 s : (16.5...17.3)
 Spread cm³ : 0.8
 100 s : (1.2)
 2nd speed rpm : 250.0
 Rack travel in mm : 4.6...5.0
 Del.quantity cm³/ : 1.5...1.9
 100 s : (1.2...2.2)
 Spread cm³ : 0.4
 100 s : (0.8)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 225
 travel mm : 1.20...1.60
 2nd speed rpm : 350
 travel mm : 2.40...3.00
 3rd speed rpm : 650
 travel mm : 4.50...5.10
 4th speed rpm : 1045
 travel mm : 8.40...8.60
 5th speed rpm : 1150
 travel mm : 9.80...10.20

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 1050
 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 700
 Aneroid pressure h: 1500
 Del.quantity : 168.0...170.0
 1000 : (165.0...173.0)

Spread cm³ : 8.00
1000 : (12.00)

RATED SPEED

1st version
Control lever
position degrees: 112...120

Testing:
1st rack travel in: 9.90
Speed rpm : 1040...1050
2nd rack travel in: 4.00
Speed rpm : 1115...1145
4th rack travel in: 1250
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 63...71

Testing:
Speed rpm : 100
Minimum rack travel: 6.20
Speed rpm : 250
Rack travel in mm : 4.60...4.80
Rack travel in mm : 2.00
Speed rpm : 390...450

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 1500
Rack travel mm : 10.90...11.00

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.90...10.30
2nd pressure hPa : 390
Rack travel in m: 10.60...10.70
3rd pressure hPa : 340
Rack travel in m: 10.20...10.40

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1500
Speed rpm : 1000
Del. quantity cm³/ : 166.0...174.0
1000 s: (164.0...176.0)
Aneroid pressure h: -
Speed rpm : 500

Del. quantity cm³/ : 142.0...146.0
1000 s: (140.0...148.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 9.90
Speed rpm : 1040...1050

STARTING FUEL DELIVERY

Speed rpm : 100
Rack travel in mm : 9.90...10.30

LOW IDLE

Speed rpm : 250
Rack travel in mm : 4.60...4.80

Remarks:

:
Delivery-valve spring pre-tension
3.2...3.4 mm.
Permissible alteration of 3.0...3.5 mm

Because of flattening, set the spring
preload on new delivery-valve holders
to 2.9...3.1 mm.

Start-of-delivery setting with R080
diaphragm.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : SCA
 Edition : 22.01.93
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 402 646 604
 Injection pump
 Pump designation : PE6P120A72ORS7188
 EP type number : 0 412 626 832
 Governor
 Governor design. : RQV350...1050PA795
 -13
 Governor no. : 0 421 814 017

Customer-spec. information
 Customer : SCANIA

Engine : DS11 Allvarv

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 025
 Inlet press., bar : 1.50
 Test nozzle holder
 assembly : 1 688 901 104
 Opening
 pressure, bar : 250...253
 Orifice plate
 diameter mm : 0,7
 Test lines : 1 680 750 008
 Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27
 Prestroke mm : 4.40...4.50
 : (4.35...4.55)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)
 Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700
 Rack travel in mm : 13.30...13.40
 Del.quantity cm3/ : 23.5...23.7
 100 s: (23.2...24.0)
 Spread cm3 : 0.8
 100 s: (1.2)

2nd speed rpm : 350.0
 Rack travel in mm : 4.6...5.0
 Del.quantity cm3/ : 2.0...2.6
 100 s: (-)
 Spread cm3 : 0.4
 100 s: (0.8)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 350
 travel mm : 1.20...1.60
 2nd speed rpm : 650
 travel mm : 4.10...4.70
 3rd speed rpm : 1095
 travel mm : 7.30...7.50
 4th speed rpm : 1240
 travel mm : 8.60...9.00

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 1280
 Rack travel in mm : 11.00...13.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 700
 Aneroid pressure h: 1500
 Del.quantity : 235.0...237.0
 1000 : (232.0...240.0)
 Spread cm3 : 8.00
 1000 : (12.00)

RATED SPEED

1st version
Control lever
position degrees: 98...106

Testing:

1st rack travel in: 13.10
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1215...1245
4th rack travel in: 1350
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 68...76

Testing:

Speed rpm : 100
Minimum rack travel: 10.00
Speed rpm : 350
Rack travel in mm : 4.60...4.80
Rack travel in mm : 2.00
Speed rpm : 375...435

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 1500
Rack travel mm : 13.30...13.40

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.20...10.60
2nd pressure hPa : 440
Rack travel in m: 12.00...12.10
3rd pressure hPa : 270
Rack travel in m: 10.90...11.10

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1500
Speed rpm : 1050
Del. quantity cm³/ : 207.0...215.0
1000 s: (205.0...218.0)
Aneroid pressure h: -
Speed rpm : 500
Del. quantity cm³/ : 152.0...154.0
1000 s: (148.0...156.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 13.10
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Rack travel in mm : 13.30...13.40

LOW IDLE

Speed rpm : 350
Rack travel in mm : 4.60...4.80

Remarks:

Delivery-valve spring pre-tension
3.2...3.4 mm.
Permissible alteration of 3.0...3.5 mm

Because of flattening, set the spring
preload on new delivery-valve holders
to 2.9...3.1 mm.

Start-of-delivery setting with ROBO
diaphragm.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 27.11.92
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 402 646 791
 Injection pump
 Pump designation : PE6P120A320LS7864
 EP type number : 0 412 626 879
 Governor
 Governor design. : RQV350...1050PA1052
 -1
 Governor no. : 0 421 814 041

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM401 LA

1st version kW : 230.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 025
 Inlet press., bar : 1.50
 Test nozzle holder
 assembly : 1 688 901 105
 Opening
 pressure, bar : 207...210
 Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter
 x Wall thickness
 x Length mm : 8.00X2.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 20.00...21.00
 Firing order : 6- 3- 5- 2- 4- 1

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 700
 Rack travel in mm : 13.00...13.10
 Del. quantity cm³/ : 22.9...23.1
 100 s: (22.6...23.4)
 Spread cm³ : 0.5
 100 s: (0.9)

2nd speed rpm : 350.0
 Rack travel in mm : 5.5...6.1
 Del. quantity cm³/ : 1.0...1.6
 100 s: (0.7...1.9)
 Spread cm³ : 0.6
 100 s: (1.0)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 350
 travel mm : 1.00...1.50
 2nd speed rpm : 453
 travel mm : 2.30...2.80
 3rd speed rpm : 770
 travel mm : 4.70...5.20
 4th speed rpm : 1108
 travel mm : 9.40...9.90

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 1180
 Rack travel in mm : 10.40...13.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 700
 Aneroid pressure h: 1000

Del.quantity : 229.0...231.0
1000 : (226.0...234.0)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 98...106

Testing:
1st rack travel in: 11.70
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1145...1175
4th rack travel in: 1300
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 64...72

Testing:
Speed rpm : 250
Minimum rack travel: 8.80
Speed rpm : 350
Rack travel in mm : 5.10...5.30
Rack travel in mm : 2.00
Speed rpm : 430...470

CONSTANT REGULATION
Speed rpm : 380...500

TORQUE CONTROL
Dimension a mm : 0.40
Torque control curve - 1st version
1st speed rpm : 700
Rack travel in m: 13.00...13.10
2nd speed rpm : 1050
Rack travel in m: 12.60...12.80
3rd speed rpm : 850
Rack travel in m: 12.90...13.10

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : -
Rack travel mm : 10.00...10.30

Measurement
Speed 1/min : 500

1st pressure hPa : 300
Rack travel in m: 10.70...10.80
2nd pressure hPa : 650

Rack travel in m: 12.40...12.60

START CUT-OUT

Speed 1/min : 270 (290)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1000
Speed rpm : 1050
Del.quantity cm³/ : 216.0...220.0
1000 s: (213.0...223.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: 1000
Speed rpm : 1050
Del.quantity cm³/ : 162.0...166.0 *
1000 s: (159.0...169.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 134.0...136.0
1000 s: (131.0...139.0)
Spread cm³ : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11.70
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 240.0...260.0
1000 s: (236.0...264.0)

Remarks:

* = Set at reduced-delivery stop.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 27.11.92
 Replaces : 10.92
 Test oil : ISO-4113
 Combination no. : 0 402 646 799
 Injection pump
 Pump designation : PE6P120A32OLS7852
 EP type number : 0 412 626 871
 Governor
 Governor design. : RQ300/950PA1031-5
 Governor no. : 0 421 801 657

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM441 LA

1st version kW : 250.0
 Rated speed : 1900
 2nd version kW : 250
 Rated speed : 1900

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 105

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter
 x Wall thickness
 x Length mm : 8.00x2.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 20.00...21.00
 Firing order : 6- 3- 5- 2- 4- 1

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 14.00...14.10

Del.quantity cm³/ : 23.4...23.6

100 s: (23.1...23.9)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 5.6...6.2

Del.quantity cm³/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm³ : 0.6

100 s: (1.0)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Aneroid pressure h: 1100

Del.quantity : 234.0...236.0

1000 : (231.0...239.0)

Spread cm³ : 5.00

1000 : (9.00)

2nd version

Speed rpm : 600

Aneroid pressure h: 1100

Del. quantity cm³/ : 234.0...236.0
1000 s: (231.0...239.0)
Spread cm³ : 5.00
1000 s: (9.00)

RATED SPEED

1st version

Setting point:
Speed rpm : 600
Rack travel in mm : 20.0

Testing:

1st rack travel in: 13.00
Speed rpm : 990...1005
2nd rack travel in: 4.00
Speed rpm : 1070...1100
4th rack travel in: 1300
Speed rpm : 0.00...1.50

2nd version

Setting point:
Speed rpm : 600
Rack travel in mm : 20.0

Testing:

1st rack travel in: 13.00
Speed rpm : 990...1005
2nd rack travel in: 4.00
Speed rpm : 1070...1100
4th rack travel in: 1300
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 5.9

Testing:

Speed rpm : 200
Minimum rack travel: 8.10
Speed rpm : 300
Rack travel in mm : 5.80...6.00
Rack travel in mm : 2.00
Speed rpm : 380...420

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : -
Rack travel mm : 10.10...10.40

Measurement

Speed 1/min : 500

1st pressure hPa : 250
Rack travel in m: 11.00...11.10
2nd pressure hPa : 550
Rack travel in m: 13.00...13.20

2th version

Setting

Speed rpm : 500
Pressure hPa : -
Rack travel in mm : 10.1...10.4

Measurement

Speed rpm : 500

1st pressure hPa : 300
Rack travel in m: 10.8...10.9
2nd pressure hPa : 700
Rack travel in m: 12.9...13.1

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1100
Speed rpm : 950
Del. quantity cm³/ : 228.0...232.0
1000 s: (225.0...235.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del. quantity cm³/ : 132.0...134.0
1000 s: (129.0...137.0)
Spread cm³ : 8.00
1000 s: (12.0)

2nd version

Aneroid pressure h: 1100
Speed rpm : 950
Del. quantity cm³/ : 228.0...232.0
1000 s: (225.0...235.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del. quantity cm³/ : 132.0...134.0
1000 s: (129.0...137.0)
Spread cm³ : 8.00
1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 13.00
Speed rpm : 990...1005

2nd version
1mm rack travel less than
full load rack tr: 13.00
Speed rpm : 990...1005

Values of version 1 only apply to regu-
lators with LDA spring 2 424 619 162.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 30.04.92
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 402 646 840
 Injection pump
 Pump designation : PE6P120A320LS7808-11
 EP type number : 0 412 626 851
 Governor
 Governor design. : RQ325/1050PA762-3
 Governor no. : 0 421 801 381

Customer-spec. information
 Customer : DAIMLER-BENZ

Engine : OM441 LA

1st version kW : 240.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 025
 Inlet press., bar : 1.50
 Overflow
 quantity min. 1/h: 100...120
 Test nozzle holder
 assembly : 1 688 901 019
 Opening
 pressure, bar : 207...210
 Orifice plate
 diameter mm : 0,8
 Test lines : 1 680 750 067
 Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27
 Prestroke mm : 4.00...4.10
 : (3.95...4.15)
 Rack travel in mm : 20.00...21.00
 Firing order : 6-3- 5- 2- 4- 1
 Phasing : 0-45-120-165-240-285
 Tolerance + - ° : 0.50 (0.75)
 Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 600
 Rack travel in mm : 14.50...14.70
 Del.quantity cm³/ : 20.9...21.1
 100 s : (20.6...21.4)
 Spread cm³ : 0.5
 100 s : (0.9)
 2nd speed rpm : 325.0
 Rack travel in mm : 6.4...6.6
 Del.quantity cm³/ : 1.6...2.2
 100 s : (1.3...2.5)
 Spread cm³ : 0.6
 100 s : (1.0)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -2
 Speed rpm : 600
 Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 600
 Aneroid pressure h: 800
 Del.quantity : 209.0...211.0
 1000 : (206.0...214.0)
 Spread cm³ : 5.00
 1000 : (9.00)

RATED SPEED

1st version
 Setting point:
 Speed rpm : 600
 Rack travel in mm : 20.0

Testing:

1st rack travel in: 14.40
Speed rpm : 1095...1110
2nd rack travel in: 4.00
Speed rpm : 1195...1225
4th rack travel in: 1300
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 325
Rack travel in mm : 6.5

Testing:

Speed rpm : 100
Minimum rack travel: 8.00
Speed rpm : 325
Rack travel in mm : 6.40...6.60
Rack travel in mm : 2.00
Speed rpm : 405...445

TORQUE CONTROL

Dimension a mm : 0.30
2nd speed rpm : 1050
Rack travel in m: 15.40...15.60
3rd speed rpm : 800
Rack travel in m: 15.70...15.90
4th speed rpm : 700

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 800
Rack travel mm : 14.50...14.70

Measurement

Speed 1/min : 600
1st pressure hPa : 300
Rack travel in m: 12.20...12.40
2nd pressure hPa : 450
Rack travel in m: 13.30...13.50
3rd pressure hPa : 900
Rack travel in m: 14.60...14.70 *
4th pressure hPa : 1100
Rack travel in m: 13.30...13.50
5th pressure hPa : -
Rack travel in m: 11.30...11.50

START CUT-OUT

Speed 1/min : 245 (265)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1300
Speed rpm : 1050
Del.quantity cm3/ : 231.0...234.0
1000 s: (228.0...237.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: 1300
Speed rpm : 800
Del.quantity cm3/ : 234.0...238.0
1000 s: (231.0...241.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 133.0...135.0
1000 s: (130.0...138.0)
Spread cm3 : 8.00
1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 14.40
Speed rpm : 1095...1110

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 190.0...210.0
1000 s: (186.0...214.0)

Remarks:

* Increase in control-rod travel with respect to setting at least 0.1 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 30.04.92
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 402 646 843

Injection pump
 Pump designation : PE6P120A320LS7808-10
 EP type number : 0 412 626 850
 Governor
 Governor design. : RQV300...1050PA797-2
 Governor no. : 0 421 813 614

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM441 LA

1st version kW : 240.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow quantity min. 1/h: 100...120

Test nozzle holder assembly : 1 688 901 105

Opening pressure, bar : 207...210

Orifice plate diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter x Wall thickness x Length mm : 8.00X2.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 20.00...21.00
 Firing order : 6- 3- 5- 2- 4- 1

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 600

 Rack travel in mm : 13.90...14.10

 Del. quantity cm³/ : 21.4...21.6
 100 s: (21.1...21.9)

 Spread cm³ : 0.5
 100 s: (0.9)

2nd speed rpm : 300.0
 Rack travel in mm : 5.6...6.2
 Del. quantity cm³/ : 1.3...1.9
 100 s: (1.0...2.2)
 Spread cm³ : 0.6
 100 s: (1.0)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL
 1st speed rpm : 300
 travel mm : 1.20...1.40
 2nd speed rpm : 600
 travel mm : 4.90...5.10
 3rd speed rpm : 1075
 travel mm : 7.40...7.60
 4th speed rpm : 1100
 travel mm : 8.00...8.40
 5th speed rpm : 1150
 travel mm : 9.00...9.40

GUIDE SLEEVE POSITION
 Control-lever position
 Degree: -1
 Speed rpm : 1125
 Rack travel in mm : 15.80...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 600
Aneroid pressure h: 900
Del.quantity : 214.0...216.0
1000 : (211.0...219.0)
Spread cm3 : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 121...129

Testing:
1st rack travel in: 13.80
Speed rpm : 1095...1110
2nd rack travel in: 4.00
Speed rpm : 1170...1200
4th rack travel in: 1300
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 81...89

Testing:
Speed rpm : 200
Minimum rack travel: 7.90
Speed rpm : 300
Rack travel in mm : 5.60...6.20

CONSTANT REGULATION
Speed rpm : 300...450

TORQUE CONTROL
Dimension a mm : 0.30
2nd speed rpm : 1050
Rack travel in m: 14.80...15.00
3rd speed rpm : 800
Rack travel in m: 15.00...15.20
4th speed rpm : 700

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 600
Pressure hPa : 900
Rack travel mm : 13.90...14.10

Measurement
Speed 1/min : 600

1st pressure hPa : 300
Rack travel in m: 10.70...10.90
2nd pressure hPa : 550
Rack travel in m: 12.90...13.10

3rd pressure hPa : 1050
Rack travel in m: 14.00...14.10 *
4th pressure hPa : 1150
Rack travel in m: 14.40...14.60
5th pressure hPa : -
Rack travel in m: 9.50...9.80

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1450
Speed rpm : 1050
Del.quantity cm3/ : 231.0...234.0
1000 s: (228.0...237.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: 1450
Speed rpm : 800
Del.quantity cm3/ : 237.0...241.0
1000 s: (234.0...244.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 142.0...144.0
1000 s: (139.0...147.0)
Spread cm3 : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 13.80
Speed rpm : 1095...1110

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 200.0...220.0
1000 s: (196.0...224.0)

Remarks:

* Increase in control-rod travel with respect to setting at least 0.1 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : SCA 11,1 r
 Edition : 16.07.93
 Replaces : 06.93
 Test oil : ISO-4113
 Combination no. : 0 402 646 887
 Injection pump
 Pump designation : PE6P120A720RS7188
 EP type number : 0 412 626 832
 Governor
 Governor design. : RQV200...950PA725-7
 Governor no. : 0 421 813 803

Customer-spec. information
 Customer : SCANIA

Engine : DSC 11 23

TEST BENCH REQUIREMENTS

Test oil inlet temp. °C : 38...42
 Overflow valve : 1 417 413 025
 Inlet press., bar : 2.50
 Overflow quantity min. 1/h: 170...210
 Test nozzle holder assembly : 1 688 901 104
 Opening pressure, bar : 250...253
 Orifice plate diameter mm : 0,7
 Test lines : 1 680 750 008
 Outside diameter x Wall thickness x Length mm : 6.00X2.00X600
 (A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 4.45...4.55
 : (4.40...4.60)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.30 (0.75)
 Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700
 Rack travel in mm : 13.80...13.90
 Del.quantity cm³/ : 25.1...25.3
 100 s : (24.8...25.6)
 Spread cm³ : 0.8
 100 s : (1.2)
 2nd speed rpm : 250.0
 Rack travel in mm : 4.6...5.0
 Del.quantity cm³/ : 1.3...1.9
 100 s : (1.0...2.2)
 Spread cm³ : 0.4
 100 s : (0.8)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 225
 travel mm : 1.20...1.60
 2nd speed rpm : 350
 travel mm : 2.40...3.00
 3rd speed rpm : 650
 travel mm : 4.50...5.10
 4th speed rpm : 1045
 travel mm : 8.40...8.60
 5th speed rpm : 1125
 travel mm : 9.30...9.70

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 1150
 Rack travel in mm : 7.00...12.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 700
 Aneroid pressure h: 1500

Del.quantity : 251.0...253.0
1000 : (248.0...256.0)
Spread cm³ : 8.00
1000 : (12.00)

RATED SPEED

1st version
Control lever
position degrees: 110...118

Testing:
1st rack travel in: 12.80
Speed rpm : 990...1000
2nd rack travel in: 4.00
Speed rpm : 1110...1140
4th rack travel in: 1250
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 60...68

Testing:
Speed rpm : 150
Minimum rack travel: 6.00
Speed rpm : 250
Rack travel in mm : 4.60...4.80
Rack travel in mm : 2.00
Speed rpm : 370...430

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 1500
Rack travel mm : 13.80...13.90

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.20...10.60
2nd pressure hPa : 440
Rack travel in m: 12.00...12.10
3rd pressure hPa : 270
Rack travel in m: 10.90...11.10

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1500
Speed rpm : 950
Del.quantity cm³/ : 233.0...241.0
1000 s: (231.0...243.0)
Aneroid pressure h: -

Speed rpm : 500
Del.quantity cm³/ : 152.0...154.0
1000 s: (149.0...157.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 12.80
Speed rpm : 990...1000

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 145.0...185.0
1000 s: (141.0...189.0)
Rack travel in mm : 10.20...10.60

LOW IDLE

Speed rpm : 250
Rack travel in mm : 4.60...4.80

Remarks:

Delivery-valve spring pre-tension
3.2...3.4 mm.
Permissible alteration of 3.0...3.5 mm

Because of flattening, set the spring
preload on new delivery-valve holders
to 2.9...3.1 mm.

Start-of-delivery setting with ROBO
diaphragm.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 30.04.92
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 402 646 897
 Injection pump
 Pump designation : PE6P120A320LS7808-10
 EP type number : 0 412 626 850
 Governor
 Governor design. : PQ300/950PA762-10
 Governor no. : 0 421 801 511

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM441 LA

1st version kw : 249.0
 Rated speed : 1900

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 20.00...21.00
 Firing order : 6- 3- 5- 2- 4- 1

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)
 Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 600
 Rack travel in mm : 13.90...14.10
 Del.quantity cm³/ : 21.4...21.6
 100 s: (21.1...21.9)
 Spread cm³ : 0.5
 100 s: (0.9)

2nd speed rpm : 300.0
 Rack travel in mm : 5.7...6.0
 Del.quantity cm³/ : 1.6...2.2
 100 s: (1.3...2.5)
 Spread cm³ : 0.6
 100 s: (1.0)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -2
 Speed rpm : 600
 Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 600
 Aneroid pressure h: 900
 Del.quantity : 214.0...216.0
 1000 : (211.0...219.0)
 Spread cm³ : 5.00
 1000 : (9.00)

RATED SPEED

1st version
 Setting point:
 Speed rpm : 600
 Rack travel in mm : 20.0

Testing:
1st rack travel in: 13.80
Speed rpm : 990...1005
2nd rack travel in: 4.00
Speed rpm : 1065...1095
4th rack travel in: 1200
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 5.8

Testing:
Speed rpm : 200
Minimum rack trave: 7.70
Speed rpm : 300
Rack travel in mm : 5.70...6.00
Rack travel in mm : 2.00
Speed rpm : 380...420

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 600
Pressure hPa : 900
Rack travel mm : 13.90...14.10

Measurement
Speed 1/min : 600

1st pressure hPa : 300
Rack travel in m: 11.00...11.20
2nd pressure hPa : 550
Rack travel in m: 13.10...13.30
3rd pressure hPa : 1100
Rack travel in m: 14.10...14.20
4th pressure hPa : 1200
Rack travel in m: 14.50...14.70
5th pressure hPa : -
Rack travel in m: 9.50...9.80

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1350
Speed rpm : 950
Del.quantity cm3/ : 241.0...243.0
1000 s: (238.0...246.0)
Spread cm3 : 8.00
1000 s: (12.0)

Aneroid pressure h: 1350
Speed rpm : 800
Del.quantity cm3/ : 241.0...246.0
1000 s: (238.0...249.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 145.0...147.0
1000 s: (142.0...150.0)
Spread cm3 : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 13.80
Speed rpm : 990...1005

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 205.0...225.0
1000 s: (201.0...229.0)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 30.04.92
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 402 646 901
 Injection pump
 Pump designation : PE6P120A320LS7808-10
 EP type number : 0 412 626 850
 Governor
 Governor design. : RQV300...950PA797-12
 Governor no. : 0 421 813 840

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM441 LA

1st version kw : 249.0
 Rated speed : 1900

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 20.00...21.00
 Firing order : 6- 3- 5- 2- 4- 1

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 13.90...14.10

Del. quantity cm³/ : 21.4...21.6

100 s: (21.1...21.9)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 5.7...6.0

Del. quantity cm³/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm³ : 0.6

100 s: (1.0)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300
 travel mm : 1.10...1.40

2nd speed rpm : 620
 travel mm : 5.00...5.40

3rd speed rpm : 780
 travel mm : 6.00...6.50

4th speed rpm : 1010
 travel mm : 8.30...8.80

5th speed rpm : 1100
 travel mm : 9.80...10.30

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1040

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 600
Aneroid pressure h: 900
Del.quantity : 214.0...216.0
1000 : (211.0...219.0)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 117...125

Testing:

1st rack travel in: 13.80
Speed rpm : 990...1000
2nd rack travel in: 4.00
Speed rpm : 1065...1095
4th rack travel in: 1200
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 80...88

Testing:

Speed rpm : 200
Minimum rack travel: 7.70
Speed rpm : 300
Rack travel in mm : 5.70...6.00

CONSTANT REGULATION

Speed rpm : 300...500

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 900
Rack travel mm : 13.90...14.10

Measurement

Speed 1/min : 600

1st pressure hPa : 300
Rack travel in m: 11.00...11.20
2nd pressure hPa : 550
Rack travel in m: 13.10...13.30
3rd pressure hPa : 1100
Rack travel in m: 14.10...14.20
4th pressure hPa : 1200
Rack travel in m: 14.50...14.70
5th pressure hPa : -
Rack travel in m: 9.50...9.80

START CUT-GJT

L26

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1350
Speed rpm : 950
Del.quantity cm³/ : 241.0...243.0
1000 s: (238.0...246.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: 1350
Speed rpm : 800
Del.quantity cm³/ : 241.0...246.0
1000 s: (238.0...249.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 145.0...147.0
1000 s: (142.0...150.0)
Spread cm³ : 8.00
1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 13.80
Speed rpm : 990...1000

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 205.0...225.0
1000 s: (201.0...229.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 30.04.92
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 402 646 906

Injection pump
 Pump designation : PE6P120A320LS7832-10
 EP type number : 0 412 626 852
 Governor
 Governor design. : RQ300/1050PA952
 Governor no. : 0 421 801 521

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM401 LA

1st version kW : 228.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow quantity min. 1/h: 100...120

Test nozzle holder assembly : 1 688 901 019

Opening pressure, bar : 207...210

Orifice plate diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter x Wall thickness x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.50...5.60
 : (5.45...5.65)
 Rack travel in mm : 20.00...21.00
 Firing order : 6- 3- 5- 2- 4- 1

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 14.80...15.00

Del.quantity cm³/ : 22.0...22.2

100 s: (21.7...22.5)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 6.4...7.0

Del.quantity cm³/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm³ : 0.6

100 s: (1.0)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Aneroid pressure h: 1000

Del.quantity : 220.0...222.0

1000 : (217.0...225.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 13.70
Speed rpm : 1095...1110
2nd rack travel in: 4.00
Speed rpm : 1150...1180
4th rack travel in: 1300
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.7

Testing:

Speed rpm : 200
Minimum rack trave: 8.70
Speed rpm : 300
Rack travel in mm : 6.40...7.00
Rack travel in mm : 2.00
Speed rpm : 390...430

TORQUE CONTROL

Dimension a mm : 0.35
2nd speed rpm : 1050
Rack travel in m: 14.70...14.90
3rd speed rpm : 800
Rack travel in m: 15.20...15.40

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 1000
Rack travel mm : 14.80...15.00

Measurement

Speed 1/min : 600
1st pressure hPa : 300
Rack travel in m: 11.20...11.40
2nd pressure hPa : 550
Rack travel in m: 13.50...13.70
3rd pressure hPa : 1400
Rack travel in m: 14.90...15.00 *
4th pressure hPa : -
Rack travel in m: 9.70...10.00

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1600

Speed rpm : 1050
Del.quantity cm3/ : 221.0...224.0
1000 s: (218.0...227.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: 1600
Speed rpm : 800
Del.quantity cm3/ : 235.0...239.0
1000 s: (232.0...242.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 129.0...131.0
1000 s: (126.0...134.0)
Spread cm3 : 8.00
1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 13.70
Speed rpm : 1095...1110

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 200.0...220.0
1000 s: (196.0...224.0)

Remarks:

* Increase in control-rod travel with respect to setting at least 0.1 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 30.04.92
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 402 646 908
 Injection pump
 Pump designation : PE6P120A320LS7808-10
 EP type number : 0 412 626 850
 Governor
 Governor design. : RQ300/950PA932-3
 Governor no. : 0 421 801 528

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM441 LA

1st version kw : 249.0
 Rated speed : 1900

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 025
 Inlet press., bar : 1.50
 Overflow
 quantity min. 1/h: 100...120
 Test nozzle holder
 assembly : 1 688 901 019
 Opening
 pressure, bar : 207...210
 Orifice plate
 diameter mm : 0,8
 Test lines : 1 680 750 067
 Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27
 Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 20.00...21.00
 Firing order : 6- 3- 5- 2- 4- 1
 Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)
 Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 600
 Rack travel in mm : 13.90...14.10
 Del. quantity cm³/ : 21.4...21.6
 100 s: (21.1...21.9)
 Spread cm³ : 0.5
 100 s: (0.9)
 2nd speed rpm : 300.0
 Rack travel in mm : 5.7...6.0
 Del. quantity cm³/ : 1.6...2.2
 100 s: (1.3...2.5)
 Spread cm³ : 0.6
 100 s: (1.0)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -2
 Speed rpm : 600
 Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 600
 Aneroid pressure h: 900
 Del. quantity : 214.0...216.0
 1000 : (211.0...219.0)
 Spread cm³ : 5.00
 1000 : (9.00)

RATED SPEED

1st version
 Setting point:
 Speed rpm : 600
 Rack travel in mm : 20.0

Testing:

1st rack travel in: 13.80
Speed rpm : 990...1005
2nd rack travel in: 4.00
Speed rpm : 1065...1095
4th rack travel in: 1200
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 5.8

Testing:

Speed rpm : 200
Minimum rack travel: 7.70
Speed rpm : 300
Rack travel in mm : 5.70...6.00
Rack travel in mm : 2.00
Speed rpm : 380...420

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 900
Rack travel mm : 13.90...14.10

Measurement

Speed 1/min : 600

1st pressure hPa : 300
Rack travel in m: 11.00...11.20
2nd pressure hPa : 550
Rack travel in m: 13.30...13.50
3rd pressure hPa : 1100
Rack travel in m: 14.10...14.20
4th pressure hPa : 1200
Rack travel in m: 14.50...14.70
5th pressure hPa : -
Rack travel in m: 9.40...9.70

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1350
Speed rpm : 950
Del.quantity cm3/ : 241.0...243.0
1000 s: (238.0...246.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: 1350
Speed rpm : 800
Del.quantity cm3/ : 241.0...246.0
1000 s: (238.0...249.0)

Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 145.0...147.0
1000 s: (142.0...150.0)
Spread cm3 : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 13.80
Speed rpm : 990...1005

STARTING FUEL DELIVERY

Speed rpm : 100
Rack travel in mm : 13.00...13.50

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : SCA
 Edition : 22.01.93
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 402 646 911

Injection pump
 Pump designation : PE6P120A320RS7138Z
 EP type number : 0 412 626 856
 Governor
 Governor design. : RQ200/1100PA873-1
 Governor no. : 0 421 801 615

Customer-spec. information
 Customer : SCANIA

Engine : DSC9 07

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 104

Opening
 pressure, bar : 250...253

Orifice plate
 diameter mm : 0,7

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.40...4.50
 : (4.35...4.55)

Rack travel in mm : 9.00...12.00

M03

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 11.80...11.90

Del.quantity cm³/ : 15.0...15.2

100 s: (14.7...15.5)

Spread cm³ : 0.8

100 s: (1.2)

2nd speed rpm : 250.0

Rack travel in mm : 4.5...4.9

Del.quantity cm³/ : 1.2...1.6

100 s: (-)

Spread cm³ : 0.4

100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 600

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Aneroid pressure h: 900

Del.quantity : 150.0...152.0

1000 : (147.0...155.0)

Spread cm³ : 8.00

1000 : (12.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 16.5

Testing:

1st rack travel in: 10.80

Speed rpm : 1145...1160

2nd rack travel in: 4.00

Speed rpm : 1290...1320

4th rack travel in: 1400
Speed rpm : 0.00...1.00

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 250
Rack travel in mm : 4.6

Testing:

Speed rpm : 100
Minimum rack travel: 6.10
Speed rpm : 250
Rack travel in mm : 4.50...4.70
Rack travel in mm : 2.00
Speed rpm : 320...360

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 11.80...11.90

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.90...10.30
2nd pressure hPa : 350
Rack travel in m: 11.50...11.60
3rd pressure hPa : 220
Rack travel in m: 10.70...10.90

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900
Speed rpm : 1100
Del.quantity cm³/ : 145.0...153.0
1000 s: (143.0...155.0)

Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 114.0...118.0
1000 s: (112.0...120.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.80
Speed rpm : 1145...1160

STARTING FUEL DELIVERY

Speed rpm : 100
Rack travel in mm : 9.90...10.30

LOW IDLE

Speed rpm : 250
Rack travel in mm : 4.50...4.70

Remarks:

Delivery-valve spring pre-tension
3.2...3.4 mm.
Permissible alteration of 3.0...3.5 mm

Because of flattening, set the spring
preload on new delivery-valve holders
to 2.9...3.1 mm.

Start-of-delivery setting with RO80
diaphragm.

APPLICATION

Omnibus

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 9,6 o
 Edition : 27.03.92
 Replaces : 01.92
 Test oil : ISO-4113

Combination no. : 0 402 646 917

Injection pump
 Pump designation : PE6P120A320LS7834
 EP type number : 0 412 626 841
 Governor
 Governor design. : RQ300/950PA971
 Governor no. : 0 421 801 543

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM401 LA

1st version kW : 230.0
 Rated speed : 1900

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 105

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test Lines : 1 680 750 075

Outside diameter
 x Wall thickness
 x Length mm : 8.00x2.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.50...5.60
 : (5.45...5.65)
 Rack travel in mm : 20.00...21.00
 Firing order : 6- 3- 5- 2- 4- 1

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 14.50...14.70

Del. quantity cm³/ : 22.7...22.9

100 s: (22.4...23.2)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 6.3...6.9

Del. quantity cm³/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm³ : 0.6

100 s: (1.0)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Aneroid pressure h: 1100

Del. quantity : 227.0...229.0

1000 : (224.0...232.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 13.90
Speed rpm : 990...1005
2nd rack travel in: 4.00
Speed rpm : 1065...1095
4th rack travel in: 12.00
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.6

Testing:

Speed rpm : 200
Minimum rack travel: 8.50
Speed rpm : 300
Rack travel in mm : 6.30...6.90
Rack travel in mm : 2.00
Speed rpm : 380...420

TORQUE CONTROL

Dimension a mm : 0.35
2nd speed rpm : 950
Rack travel in m: 14.90...15.10
3rd speed rpm : 800
Rack travel in m: 15.20...15.40

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 1100
Rack travel mm : 14.50...14.70

Measurement

Speed 1/min : 600
1st pressure hPa : 300
Rack travel in m: 10.70...10.90
2nd pressure hPa : 700
Rack travel in m: 13.50...13.70
3rd pressure hPa : 1400
Rack travel in m: 14.60...14.80
4th pressure hPa : 1550
Rack travel in m: 14.90...15.10
5th pressure hPa : -
Rack travel in m: 10.00...10.30

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1800
Speed rpm : 950

Del.quantity cm³/ : 236.0...239.0
1000 s : (233.0...242.0)
Spread cm³ : 8.00
1000 s : (12.0)
Aneroid pressure h: 1800
Speed rpm : 800
Del.quantity cm³/ : 243.0...247.0
1000 s : (240.0...250.0)
Spread cm³ : 8.00
1000 s : (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 132.0...134.0
1000 s : (129.0...137.0)
Spread cm³ : 8.00
1000 s : (12.0)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 13.90
Speed rpm : 990...1005

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 30.0...55.0
1000 s : (-)
Rack travel in mm : 10.00...10.30

Remarks:

* Increase in control-rod travel with respect to setting at least 0.1 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 30.04.92
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 402 646 919
 Injection pump
 Pump designation : PE6P120A320LS7808-10
 EP type number : 0 412 626 850
 Governor
 Governor design. : RQ300/950PA762-13
 Governor no. : 0 421 801 544

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM441 LA

1st version kW : 250.0
 Rated speed : 1900

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 105

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter
 x Wall thickness
 x Length mm : 8.00x2.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 20.00...21.00
 Firing order : 6- 3- 5- 2- 4- 1

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 14.10...14.30

Del.quantity cm³/ : 21.6...21.8

100 s : (21.3...22.1)

Spread cm³ : 0.5

100 s : (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 5.7...6.0

Del.quantity cm³/ : 1.6...2.2

100 s : (1.3...2.5)

Spread cm³ : 0.6

100 s : (1.0)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Aneroid pressure h: 750

Del.quantity : 216.0...218.0

1000 : (213.0...221.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:
1st rack travel in: 14.30
Speed rpm : 1090...1105
2nd rack travel in: 4.00
Speed rpm : 1175...1205
4th rack travel in: 1300
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 5.8

Testing:
Speed rpm : 200
Minimum rack travel: 7.70
Speed rpm : 300
Rack travel in mm : 5.70...6.00
Rack travel in mm : 2.00
Speed rpm : 380...420

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 750
Rack travel mm : 14.10...14.30

Measurement

Speed 1/min : 600

1st pressure hPa : 200
Rack travel in m: 10.30...10.50
2nd pressure hPa : 500
Rack travel in m: 13.00...13.20
3rd pressure hPa : 950
Rack travel in m: 14.20...14.40 *
4th pressure hPa : 1150
Rack travel in m: 14.80...15.00
5th pressure hPa : -
Rack travel in m: 9.20...9.30

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1350
Speed rpm : 1050
Del.quantity cm³/ : 243.0...245.0
1000 s: (240.0...248.0)
Spread cm³ : 8.00
1000 s: (12.0)

Aneroid pressure h: 1350
Speed rpm : 750
Del.quantity cm³/ : 239.0...243.0
1000 s: (236.0...246.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: --
Speed rpm : 500
Del.quantity cm³/ : 134.0...136.0
1000 s: (131.0...139.0)
Spread cm³ : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 14.30
Speed rpm : 1090...1105

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 210.0...230.0
1000 s: (206.0...234.0)

Remarks:

* Increase in control-rod travel with respect to setting at least 0.1 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 30.04.92
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 402 646 920
 Injection pump
 Pump designation : PE6P120A320LS7808-10
 EP type number : 0 412 626 850
 Governor
 Governor design. : RG300/95DPA971-1
 Governor no. : 0 421 801 547

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM441 LA

1st version kw : 250.0
 Rated speed : 1900

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 105

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test Lines : 1 680 750 075

Outside diameter
 x Wall thickness
 x Length mm : 8.00x2.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 20.00...21.00
 Firing order : 6- 3- 5- 2- 4- 1

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 13.90...14.10

Del. quantity cm³/ : 22.1...22.3

100 s: (21.8...22.6)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 5.7...6.0

Del. quantity cm³/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm³ : 0.6

100 s: (1.0)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Aneroid pressure h: 950

Del. quantity : 221.0...223.0

1000 : (218.0...226.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:
1st rack travel in: 14.10
Speed rpm : 990...1005
2nd rack travel in: 4.00
Speed rpm : 1065...1095
4th rack travel in: 1150
Speed rpm : 0.00...1.50

LOW IDLE 1
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 5.8

Testing:
Speed rpm : 200
Minimum rack travel: 7.70
Speed rpm : 300
Rack travel in mm : 5.70...6.00
Rack travel in mm : 2.00
Speed rpm : 380...420

TORQUE CONTROL
2nd speed rpm : 950
3rd speed rpm : 700

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 600
Pressure hPa : 900
Rack travel mm : 13.90...14.10

Measurement
Speed 1/min : 600

1st pressure hPa : 350
Rack travel in m: 10.70...10.90
2nd pressure hPa : 600
Rack travel in m: 12.80...13.00
3rd pressure hPa : 1150
Rack travel in m: 14.20...14.40
4th pressure hPa : 1250
Rack travel in m: 14.70...14.90
5th pressure hPa : -
Rack travel in m: 9.20...9.50

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1550
Speed rpm : 950
Del.quantity cm³/ : 251.0...254.0
1000 s: (248.0...257.0)
Spread cm³ : 8.00
1000 s: (12.0)

Aneroid pressure h: 1550
Speed rpm : 750
Del.quantity cm³/ : 242.0...246.0
1000 s: (239.0...249.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 138.0...140.0
1000 s: (135.0...143.0)
Spread cm³ : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 14.10
Speed rpm : 990...1005

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF 8,7 b
 Edition : 18.12.91
 Replaces : 05.91
 Test oil : ISO-4113
 Combination no. : 0 402 646 933
 Injection pump
 Pump designation : PE6P120A32ORS7228
 EP type number : 0 412 626 845
 Governor
 Governor design. : RQ275/1150PA987
 Governor no. : 0 421 801 578

Customer-spec. information
 Customer : DAF

Engine : RS 222

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 025
 Inlet press., bar : 1.50
 Test nozzle holder
 assembly : 1 688 901 105
 Opening
 pressure, bar : 207...210
 Orifice plate
 diameter mm : 0,8
 Test lines : 1 680 750 089
 Outside diameter
 x Wall thickness
 x Length mm : 8.00X2.50X600
 (A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27
 Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 14.20...15.20

M11

Firing order : 1- 5- 3- 6- 2- 4
 Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)
 Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 5.50...5.70
 & maximum rack tra: 14.2...15.2
 Difference ° CS : 3.25...4.75

BASIC SETTING

1st speed rpm : 1000
 Rack travel in mm : 14.70...14.80
 Del. quantity cm³/ : 17.7...17.9
 100 s : (17.4...18.2)
 Spread cm³ : 0.5
 100 s : (0.9)
 2nd speed rpm : 275.0
 Rack travel in mm : 6.6...6.8
 Del. quantity cm³/ : 1.3...1.9
 100 s : (1.0...2.2)
 Spread cm³ : 0.8
 100 s : (1.2)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 550
 Rack travel in mm : 15.60...16.40

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1000
 Aneroid pressure h: 1000
 Del. quantity : 177.0...179.0
 1000 : (174.0...182.0)
 Spread cm³ : 5.00
 1000 : (9.00)

RATED SPEED

1st version
 Setting point:
 Speed rpm : 550
 Rack travel in mm : 16.0

Testing:

1st rack travel in: 13.70
Speed rpm : 1175...1190
2nd rack travel in: 4.00
Speed rpm : 1260...1290
4th rack travel in: 14.50
Speed rpm : 0.00...1.40

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 275
Rack travel in mm : 5.6

Testing:

Speed rpm : 100
Minimum rack travel: 7.10
Speed rpm : 275
Rack travel in mm : 5.50...5.70
Rack travel in mm : 2.00
Speed rpm : 330...370

TORQUE CONTROL

Dimension a mm : -
Torque control curve - 1st version
1st speed rpm : 1000
Rack travel in m: 15.20...15.30
2nd speed rpm : 1150
Rack travel in m: 15.10...15.30

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 1000
Rack travel mm : 14.70...14.80

Measurement

Speed 1/min : 600
1st pressure hPa : -
Rack travel in m: 12.60...12.80
2nd pressure hPa : 470
Rack travel in m: 13.90...14.00
3rd pressure hPa : 350
Rack travel in m: 13.00...13.20

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -
Speed rpm : 600
Del. quantity cm³/ : 131.0...133.0
1000 s: (128.0...136.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 13.70
Speed rpm : 1175...1190

LOW IDLE

Speed rpm : 275
Rack travel in mm : 5.50...5.70

Remarks:

:
Start-of-delivery blocking at start of
delivery of cylinder no. 1.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 30.04.92
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 402 646 943
 Injection pump
 Pump designation : PE6P120A320S7808-10
 EP type number : 0 412 626 850
 Governor
 Governor design. : RQV300...950PA795-28
 Governor no. : 0 421 813 925

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM441 LA

1st version kW : 250.0
 Rated speed : 1900

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 105

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter
 x Wall thickness
 x Length mm : 8.00X2.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 20.00...21.00
 Firing order : 6- 3- 5- 2- 4- 1

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 13.90...14.10

Del.quantity cm³/ : 22.1...22.3

100 s: (21.8...22.6)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 5.7...6.0

Del.quantity cm³/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm³ : 0.6

100 s: (1.0)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300
 travel mm : 1.00...1.50

2nd speed rpm : 567
 travel mm : 4.40...4.90

3rd speed rpm : 780
 travel mm : 6.10...6.60

4th speed rpm : 1009
 travel mm : 8.30...8.80

5th speed rpm : 1092
 travel mm : 9.80...10.30

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1090

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 600
Aneroid pressure h: 950
Del.quantity : 221.0...223.0
1000 : (218.0...226.0)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 95...103

Testing:

1st rack travel in: 14.10
Speed rpm : 990...1000
2nd rack travel in: 4.00
Speed rpm : 1065...1095
4th rack travel in: 1150
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 69...77

Testing:

Speed rpm : 200
Minimum rack travel: 7.70
Speed rpm : 300
Rack travel in mm : 5.70...6.00

CONSTANT REGULATION

Speed rpm : 300...500

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 900
Rack travel mm : 13.90...14.10

Measurement

Speed 1/min : 600

1st pressure hPa : 350
Rack travel in m: 10.70...10.90
2nd pressure hPa : 600
Rack travel in m: 12.80...13.00
3rd pressure hPa : 1150
Rack travel in m: 14.20...14.40
4th pressure hPa : 1250
Rack travel in m: 14.70...14.90
5th pressure hPa : -
Rack travel in m: 9.20...9.50

FUEL DELIVERY CHARACTERISTICS

M14

1st version

Aneroid pressure h: 1550
Speed rpm : 950
Del.quantity cm³/ : 251.0...254.0
1000 s: (248.0...257.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: 1550
Speed rpm : 750
Del.quantity cm³/ : 242.0...246.0
1000 s: (239.0...249.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 138.0...140.0
1000 s: (135.0...143.0)
Spread cm³ : 8.00
1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 14.10
Speed rpm : 990...1000

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 210.0...230.0
1000 s: (206.0...234.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 30.04.92
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 402 646 944
 Injection pump
 Pump designation : PE6P120A320LS7808-10
 EP type number : 0 412 626 850
 Governor
 Governor design. : RGV300...1050PA797
 -29
 Governor no. : 0 421 813 926
 Customer-spec. information
 Customer : MERCEDES-BENZ
 Engine : OM441 LA
 1st version kW : 250.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 025
 Inlet press., bar : 1.50
 Overflow
 quantity min. 1/h: 100...120
 Test nozzle holder
 assembly : 1 688 901 105
 Opening
 pressure, bar : 207...210
 Orifice plate
 diameter mm : 0,8
 Test lines : 1 680 750 075
 Outside diameter
 x Wall thickness
 x Length mm : 8.00X2.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27
 Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 20.00...21.00
 Firing order : 6- 3- 5- 2- 4- 1
 Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)
 Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 600
 Rack travel in mm : 14.10... 14.30
 Del. quantity cm³/ : 21.6...21.8
 100 s: (21.3...22.1)
 Spread cm³ : 0.5
 100 s: (0.9)
 2nd speed rpm : 300.0
 Rack travel in mm : 5.7...6.0
 Del. quantity cm³/ : 1.6...2.2
 100 s: (1.3...2.5)
 Spread cm³ : 0.6
 100 s: (1.0)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300
 travel mm : 1.00...1.50
 2nd speed rpm : 608
 travel mm : 4.80...5.30
 3rd speed rpm : 820
 travel mm : 5.90...6.40
 4th speed rpm : 1108
 travel mm : 8.30...8.80
 5th speed rpm : 1183
 travel mm : 9.60...10.30

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 1090
 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 600
Aneroid pressure h: 750
Del.quantity : 216.0...218.0
1000 : (213.0...221.0)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 118...126

Testing:
1st rack travel in: 14.30
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1175...1205
4th rack travel in: 1300
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 54...62

Testing:
Speed rpm : 200
Minimum rack trave: 7.70
Speed rpm : 300
Rack travel in mm : 5.70...6.00

CONSTANT REGULATION
Speed rpm : 300...500

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 600
Pressure hPa : 750
Rack travel mm : 14.10...14.30

Measurement
Speed 1/min : 600

1st pressure hPa : 200
Rack travel in m: 10.30...10.50
2nd pressure hPa : 500
Rack travel in m: 13.00...13.20
3rd pressure hPa : 950
Rack travel in m: 14.20...14.40 *
4th pressure hPa : 1150
Rack travel in m: 14.80...15.00
5th pressure hPa : -
Rack travel in m: 9.20...9.50

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1350
Speed rpm : 1050
Del.quantity cm³/ : 243.0...245.0
1000 s: (240.0...248.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: 1350
Speed rpm : 750
Del.quantity cm³/ : 239.0...243.0
1000 s: (236.0...246.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 134.0...136.0
1000 s: (131.0...139.0)
Spread cm³ : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 14.30
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 210.0...230.0
1000 s: (206.0...234.0)

Remarks:

* Increase in control-rod travel with respect to setting at least 0.1 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : UNI 13,8 h2
 Edition : 05.10.92
 Replaces : 07.92
 Test oil : ISO-4113
 Combination no. : 0 402 646 947
 Injection pump
 Pump designation : PE6P130A72ORS7225
 EP type number : 0 412 636 817
 Governor
 Governor design. : RQV300...950PA1002
 -1K
 Governor no. : 0 421 815 280

Customer-spec. information
 Customer : IVECO-UNIC

Engine : 8210.42.400

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 025
 Inlet press., bar : 1.50
 Test nozzle holder
 assembly : 1 688 901 105
 Opening
 pressure, bar : 207...210
 Orifice plate
 diameter mm : 0,8
 Test lines : 1 680 750 075
 Outside diameter
 x Wall thickness
 x Length mm : 8.00x2.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.00...5.10
 : (4.95...5.15)

Rack travel in mm : 13.50...14.50
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 5.90...6.10
 & maximum rack tra: 12.5...13.5
 Difference ° CS : 1.25...2.75

BASIC SETTING

1st speed rpm : 900

Rack travel in mm : 13.00...13.10

Del. quantity cm³/ : 31.3...31.5

100 s: (31.0...31.8)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 4.0...4.4

Del. quantity cm³/ : 1.9...2.5

100 s: (1.6...2.8)

Spread cm³ : 0.8

100 s: (1.2)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 995

travel mm : 8.50...8.70

2nd speed rpm : 300

travel mm : 1.00...1.40

3rd speed rpm : 500

travel mm : 3.30...3.90

4th speed rpm : 750

travel mm : 5.80...6.20

5th speed rpm : 1300

travel mm : 13.00...14.00

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1125

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 900
Aneroid pressure h: 900
Del.quantity : 313.0...315.0
1000 : (310.0...318.0)
Spread cm3 : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 112...120

Testing:
1st rack travel in: 12.00
Speed rpm : 990...1000
2nd rack travel in: 4.00
Speed rpm : 1100...1130
4th rack travel in: 1300
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 66...74

Testing:
Speed rpm : 100
Minimum rack trave: 5.70
Speed rpm : 300
Rack travel in mm : 4.00...4.40

CONSTANT REGULATION
Speed rpm : 340...460

TORQUE CONTROL
Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 900
Rack travel in m: 13.00...13.10
2nd speed rpm : 700
Rack travel in m: 12.70...12.90
3rd speed rpm : 550
Rack travel in m: 12.00...12.20
4th speed rpm : 300
Rack travel in m: 11.20...11.70

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 900
Pressure hPa : 900
Rack travel mm : 13.00...13.10

Measurement
Speed 1/min : 900

M18

1st pressure hPa : -
Rack travel in m: 8.30...8.50
2nd pressure hPa : 580
Rack travel in m: 11.90...12.00
3rd pressure hPa : 300
Rack travel in m: 9.30...9.70

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 900
Speed rpm : 550
Del.quantity cm3/ : 286.0...292.0
1000 s: (283.0...295.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 148.0...150.0
1000 s: (145.0...153.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 12.00
Speed rpm : 990...1000

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 135.0...165.0
1000 s: (131.0...169.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 4.00...4.40
Del.quantity cm3/ : 19.0...25.0
1000 s: (16.0...28.0)
Spread cm3 : 8.00
1000 s: (12.00)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF 11,7 n1
 Edition : 23.10.92
 Replaces : 02.92
 Test oil : ISO-4113
 Combination no. : 0 402 646 949
 Injection pump
 Pump designation : PE6P120A320RS7230Z
 EP type number : 0 412 626 848
 Governor
 Governor design. : RQV250...1000PA990K
 Governor no. : 0 421 815 274

Customer-spec. information
 Customer : DAF

Engine : WS 295 G

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 025
 Inlet press., bar : 1.50
 Test nozzle holder
 assembly : 1 688 901 105
 Opening
 pressure, bar : 207...210
 Orifice plate
 diameter mm : 0,8
 Test lines : 1 680 750 089
 Outside diameter
 x Wall thickness
 x Length mm : 8.00X2.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27
 Prestroke mm : 5.00...5.10
 : (4.95...5.15)
 Rack travel in mm : 14.00...15.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 980
 Rack travel in mm : 13.70...13.80
 Del.quantity cm3/ : 25.4...25.6
 100 s: (25.1...25.9)
 Spread cm3 : 0.5
 100 s: (0.9)
 2nd speed rpm : 250.0
 Rack travel in mm : 5.8...6.0
 Del.quantity cm3/ : 1.4...2.0
 100 s: (1.1...2.3)
 Spread cm3 : 0.8
 100 s: (1.2)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250
 travel mm : 1.30...1.70
 2nd speed rpm : 285
 travel mm : 2.10...2.50
 3rd speed rpm : 1030
 travel mm : 9.60...10.00
 4th speed rpm : 1145
 travel mm : 11.20...11.40

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 1070
 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 980
 Aneroid pressure h: 1500
 Del.quantity : 254.0...256.0
 1000 : (251.0...259.0)
 Spread cm3 : 5.00
 1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 117...125

Testing:
1st rack travel in: 12.70
Speed rpm : 1030...1040
2nd rack travel in: 4.00
Speed rpm : 1135...1165
4th rack travel in: 1275
Speed rpm : 0.00...1.40

LOW IDLE 1
Control lever
position degrees: 67...75

Testing:
Speed rpm : 150
Minimum rack travel: 7.00
Speed rpm : 250
Rack travel in mm : 5.10...5.30
Rack travel in mm : 2.00
Speed rpm : 320...360

TORQUE CONTROL
Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 500
Rack travel in m: 12.30...12.40
2nd speed rpm : 550
Rack travel in m: 12.30...12.50
3rd speed rpm : 750
Rack travel in m: 12.90...13.00
4th speed rpm : 850
Rack travel in m: 13.30...13.50
5th speed rpm : 980
Rack travel in m: 14.00...14.20

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 980
Pressure hPa : 1500
Rack travel mm : 13.70...13.80

Measurement
Speed 1/min : 980

1st pressure hPa : -
Rack travel in m: 8.00...8.20
2nd pressure hPa : 380
Rack travel in m: 10.80...10.90
3rd pressure hPa : 150
Rack travel in m: 9.10...9.30

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1500
Speed rpm : 500
Del.quantity cm3/ : 267.0...271.0
1000 s: (264.0...274.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 600
Del.quantity cm3/ : 143.0...145.0
1000 s: (140.0...148.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 12.70
Speed rpm : 1030...1040

LOW IDLE

Speed rpm : 250
Rack travel in mm : 5.10...5.30

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 30.04.92
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 402 646 950
 Injection pump
 Pump designation : PE6P120A320LS7837-10
 EP type number : 0 412 626 855
 Governor
 Governor design. : RQ300/950PA993-2
 Governor no. : 0 421 801 590

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM441 LA

1st version kW : 250.0
 Rated speed : 1900

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 105

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter
 x Wall thickness
 x Length mm : 8.00X2.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 20.00...21.00
 Firing order : 6- 3- 5- 2- 4- 1

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 14.70...14.90

Del. quantity cm³/ : 23.3...23.5

100 s: (23.0...23.8)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 6.2...6.8

Del. quantity cm³/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm³ : 0.6

100 s: (1.0)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Aneroid pressure h: 1000

Del. quantity : 233.0...235.0

1000 : (230.0...238.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 14.70
Speed rpm : 990...1005
2nd rack travel in: 4.00
Speed rpm : 1065...1095
4th rack travel in: 1200
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.5

Testing:

Speed rpm : 200
Minimum rack trave: 8.30
Speed rpm : 300
Rack travel in mm : 6.20...6.80
Rack travel in mm : 2.00
Speed rpm : 380...420

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 1000
Rack travel mm : 14.70...14.90

Measurement

Speed 1/min : 600

1st pressure hPa : 200
Rack travel in m: 9.80...10.00
2nd pressure hPa : 600
Rack travel in m: 13.50...13.70
3rd pressure hPa : 1250
Rack travel in m: 14.80...15.00
4th pressure hPa : 1450
Rack travel in m: 15.40...15.60
5th pressure hPa : -
Rack travel in m: 9.50...9.70

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1800
Speed rpm : 950
Del.quantity cm3/ : 251.0...254.0
1000 s: (248.0...257.0)
Spread cm3 : 8.00
1000 s: (12.0)

Aneroid pressure h: 1800
Speed rpm : 800
Del.quantity cm3/ : 250.0...254.0
1000 s: (247.0...257.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 135.0...137.0
1000 s: (132.0...140.0)
Spread cm3 : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 14.70
Speed rpm : 990...1005

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 240.0...260.0
1000 s: (236.0...264.0)

Remarks:

* Increase in control-rod travel with respect to setting at least 0.1 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 9,6 o 5
 Edition : 30.04.92
 Replaces : 03.92
 Test oil : ISO-4113
 Combination no. : 0 402 646 955
 Injection pump
 Pump designation : PE6P120A320LS7834-1
 EP type number : 0 412 626 857
 Governor
 Governor design. : RQV350...1050PA866
 -13
 Governor no. : 0 421 813 954

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM401 LA

1st version kW : 230.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 419 992 198
 Inlet press., bar : 1.50
 Overflow
 quantity min. 1/h: 100...120
 Test nozzle holder
 assembly : 1 688 901 019
 Opening
 pressure, bar : 207...210
 Orifice plate
 diameter mm : 0,8
 Test lines : 1 680 750 075
 Outside diameter
 x Wall thickness
 x Length mm : 8.00X2.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27
 Prestroke mm : 5.50...5.60
 : (5.45...5.65)
 Rack travel in mm : 20.00...21.00
 Firing order : 6-3-5-2-4-1

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)
 Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 600
 Rack travel in mm : 14.60...14.80
 Del. quantity cm³/ : 22.2...22.4
 100 s : (21.9...22.7)
 Spread cm³ : 0.5
 100 s : (0.9)
 2nd speed rpm : 350.0
 Rack travel in mm : 5.1...5.7
 Del. quantity cm³/ : 1.6...2.2
 100 s : (1.3...2.5)
 Spread cm³ : 0.6
 100 s : (1.0)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 350
 travel mm : 1.30...1.80
 2nd speed rpm : 570
 travel mm : 3.30...3.80
 3rd speed rpm : 900
 travel mm : 5.40...5.90
 4th speed rpm : 1107
 travel mm : 7.80...8.30
 5th speed rpm : 1204
 travel mm : 9.80...10.30

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 1130
 Rack travel in mm : 16.50...18.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 600
Aneroid pressure h : 900
Del. quantity : 222.0...224.0
1000 : (219.0...227.0)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 117...125

Testing:

1st rack travel in: 13.70
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1160...1190
4th rack travel in: 1300
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 63...71

Testing:

Speed rpm : 200
Minimum rack travel: 7.30
Speed rpm : 350
Rack travel in mm : 5.10...5.70

CONSTANT REGULATION

Speed rpm : 350...600

TORQUE CONTROL

Dimension a mm : 0.40
2nd speed rpm : 1050
Rack travel in m: 14.80...15.00
3rd speed rpm : 800
Rack travel in m: 15.20...15.40

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 900
Rack travel mm : 14.60...14.80

Measurement

Speed 1/min : 600

1st pressure hPa : 300
Rack travel in m: 11.40...11.60
2nd pressure hPa : 600
Rack travel in m: 13.40...13.60

3rd pressure hPa : 1350
Rack travel in m: 14.70...14.90
4th pressure hPa : -
Rack travel in m: 10.00...10.30

START CUT-OUT

Speed 1/min : 270 (290)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1800
Speed rpm : 1050
Del. quantity cm³/ : 234.0...237.0
1000 s: (231.0...240.0)

Spread cm³ : 8.00
1000 s: (12.0)

Aneroid pressure h: 1800
Speed rpm : 800
Del. quantity cm³/ : 241.0...245.0
1000 s: (238.0...248.0)

Spread cm³ : 8.00
1000 s: (12.0)

Aneroid pressure h: 1800
Speed rpm : 1050
Del. quantity cm³/ : 175.0...179.0 *

Spread cm³ : 8.00
1000 s: (12.0)

Aneroid pressure h: -
Speed rpm : 500
Del. quantity cm³/ : 132.0...134.0
1000 s: (129.0...137.0)

Spread cm³ : 8.00
1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 13.70
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 250.0...270.0
1000 s: (246.0...274.0)

Remarks:

* = Set at reduced-delivery stop.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 9,6 0 7
 Edition : 30.04.92
 Replaces : 03.92
 Test oil : ISO-4113
 Combination no. : 0 402 646 961
 Injection pump
 Pump designation : PE6P120A320LS7834-1
 EP type number : 0 412 626 857
 Governor
 Governor design. : RQV35D...950PA866-14
 Governor no. : 0 421 813 959

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM401 LA

1st version kW : 213.0
 Rated speed : 1900

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter
 x Wall thickness
 x Length mm : 8.00X2.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.50...5.60
 : (5.45...5.55)
 Rack travel in mm : 20.00...21.00
 Firing order : 6- 3- 5- 2- 4- 1

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 600
 Rack travel in mm : 14.30...14.50
 Del.quantity cm³/ : 20.9...21.1
 100 s: (20.6...21.4)
 Spread cm³ : 0.5
 100 s: (0.9)

2nd speed rpm : 350.0
 Rack travel in mm : 5.6...6.2
 Del.quantity cm³/ : 1.6...2.2
 100 s: (1.3...2.5)
 Spread cm³ : 0.6
 100 s: (1.0)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 350
 travel mm : 1.30...1.80
 2nd speed rpm : 424
 travel mm : 2.30...2.80
 3rd speed rpm : 700
 travel mm : 4.10...4.60
 4th speed rpm : 1008
 travel mm : 7.90...8.40
 5th speed rpm : 1220
 travel mm : 11.00...12.00

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 985
 Rack travel in mm : 16.50...18.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 600
Aneroid pressure h: 900
Del.quantity : 209.0...211.0
1000 : (206.0...214.0)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 111...119

Testing:

1st rack travel in: 13.80
Speed rpm : 990...1000
2nd rack travel in: 4.00
Speed rpm : 1065...1095
4th rack travel in: 1250
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 63...71

Testing:

Speed rpm : 200
Minimum rack travel: 7.30
Speed rpm : 350
Rack travel in mm : 5.10...5.70

CONSTANT REGULATION

Speed rpm : 350...600

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 900
Rack travel mm : 13.30...13.50

Measurement

Speed 1/min : 600

1st pressure hPa : 300
Rack travel in m: 9.80...10.00
2nd pressure hPa : 550
Rack travel in m: 12.30...12.50
3rd pressure hPa : 1300
Rack travel in m: 13.70...13.90
4th pressure hPa : -
Rack travel in m: 9.90...10.20

START CUT-OUT

Speed 1/min : 270 (290)

M26

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1600
Speed rpm : 950
Del.quantity cm³/ : 228.0...231.0
1000 s: (225.0...234.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: 1600
Speed rpm : 800
Del.quantity cm³/ : 230.0...234.0
1000 s: (227.0...237.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: 1600
Speed rpm : 950
Del.quantity cm³/ : 169.0...173.0 *
1000 s: (166.0...176.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 132.0...134.0
1000 s: (129.0...137.0)
Spread cm³ : 8.00
1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 13.80
Speed rpm : 990...1000

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 240.0...260.0
1000 s: (236.0...264.0)

Remarks:

:

* = Set at reduced-delivery stop.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF
 Edition : 22.01.93
 Replaces : 10.92
 Test oil : ISO-4113
 Combination no. : 0 402 646 984
 Injection pump
 Pump designation : PE6P120A320RS7248
 EP type number : 0 412 626 861
 Governor
 Governor design. : RQ275/1150PA987
 Governor no. : 0 421 801 578

Customer-spec. information
 Customer : DAF

Engine : RS 222 L

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 105

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 089

Outside diameter
 x Wall thickness
 x Length mm : 8.00X2.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 12.00...13.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 4.90...5.10
 & maximum rack tra: 11.7...12.7
 Difference ° CS : 2.25...3.75

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 12.20...12.30

Del. quantity cm³/ : 18.4...18.6

100 s: (18.1...18.9)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 275.0

Rack travel in mm : 5.3...5.5

Del. quantity cm³/ : 1.3...1.9

100 s: (1.0...2.2)

Spread cm³ : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 550

Rack travel in mm : 15.20...16.40

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000

Aneroid pressure h: 1000

Del. quantity : 186.0...188.0

1000 : (183.0...191.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 550

Rack travel in mm : 15.8

Testing:
1st rack travel in: 11.20
Speed rpm : 1200...1216
2nd rack travel in: 4.00
Speed rpm : 1275...1305
4th rack travel in: 1450
Speed rpm : 0.00...1.40

LOW IDLE 1
Setting point w/out bumper spring
Speed rpm : 275
Rack travel in mm : 4.7

Testing:
Speed rpm : 175
Minimum rack trave: 7.00
Speed rpm : 275
Rack travel in mm : 4.60...4.80
Rack travel in mm : 2.00
Speed rpm : 320...360

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 600
Pressure hPa : 1000
Rack travel mm : 12.20...12.30

Measurement
Speed 1/min : 600

1st pressure hPa : -
Rack travel in m: 9.30...9.50
2nd pressure hPa : 420
Rack travel in m: 11.60...11.70
3rd pressure hPa : 240
Rack travel in m: 10.30...10.50

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: -
Speed rpm : 600
Del.quantity cm³/ : 121.0...123.0
1000 s: (118.0...126.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.20
Speed rpm : 1200...1215

LOW IDLE

Speed rpm : 275
Rack travel in mm : 4.60...4.80

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF
 Edition : 23.10.92
 Replaces : 07.92
 Test oil : ISO-4113
 Combination no. : 0 402 646 991
 Injection pump
 Pump designation : PE6P120A32ORS7218Y
 EP type number : 0 412 626 859
 Governor
 Governor design. : RQV275...1000PA939-2
 Governor no. : 0 421 813 986

Customer spec. information
 Customer : DAF

Engine : WS 222 L

TEST BENCH REQUIREMENTS

Test oil inlet temp. °C : 38...42
 Overflow valve : 1 417 413 025
 Inlet press., bar : 1.50
 Test nozzle holder assembly : 1 688 901 105
 Opening pressure, bar : 207...210
 Orifice plate diameter mm : 0,8

Test lines : 1 680 750 089

Outside diameter x Wall thickness x Length mm : 8.00X2.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27
 Prestroke mm : 5.30...5.40
 : (5.25...5.45)
 Rack travel in mm : 13.00...14.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 4.90...5.10
 & maximum rack tra: 13.2...14.2
 Difference ° CS : 2.25...3.75

BASIC SETTING

1st speed	rpm	: 850
<hr/>		
Rack travel in mm		: 13.80...13.90
<hr/>		
Del. quantity cm ³ /		: 19.8...20.0
<hr/>		
100 s:		(19.5...20.3)
<hr/>		
Spread	cm ³	: 0.5
<hr/>		
100 s:		(0.9)
<hr/>		
2nd speed	rpm	: 275.0
Rack travel in mm		: 6.2...6.6
Del. quantity cm ³ /		: 1.4...2.0
<hr/>		
100 s:		(1.1...2.3)
<hr/>		
Spread	cm ³	: 0.8
<hr/>		
100 s:		(1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed	rpm	: 275
travel mm		: 1.25...1.45
2nd speed	rpm	: 301
travel mm		: 1.50...2.00
3rd speed	rpm	: 351
travel mm		: 2.30...2.80
4th speed	rpm	: 676
travel mm		: 4.25...4.75
5th speed	rpm	: 1058
travel mm		: 7.95...8.15

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 1150
 Rack travel in mm : 11.40...14.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 850
Aneroid pressure h: 1000
Del. quantity : 198.0...200.0
1000 : (195.0...203.0)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 115...123

Testing:
1st rack travel in: 12.80
Speed rpm : 1040...1050
2nd rack travel in: 4.00
Speed rpm : 1145...1175
4th rack travel in: 1250
Speed rpm : 0.00...1.40

LOW IDLE 1
Control lever
position degrees: 78...86

Testing:
Speed rpm : 175
Minimum rack travel: 6.50
Speed rpm : 275
Rack travel in mm : 4.90...5.10

CONSTANT REGULATION
Speed rpm : 300...350

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 600
Pressure hPa : 1000
Rack travel mm : 13.80...13.90

Measurement
Speed 1/min : 600

1st pressure hPa : -
Rack travel in m: 11.50...11.70
2nd pressure hPa : 400
Rack travel in m: 13.20...13.30
3rd pressure hPa : 230
Rack travel in m: 12.00...12.20

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: -

NO2

Speed rpm : 600
Del. quantity cm³/ : 139.0...141.0
1000 s: (136.0...144.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 12.80
Speed rpm : 1040...1050

LOW IDLE

Speed rpm : 275
Rack travel in mm : 4.90...5.10

Remarks:

:

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : OPE
 Edition : 07.93
 replaces : -
 Calibrating oil : ISO-4113
 Injection pump : VE4/10F2150L489
 Type number : 0 460 404 074
 Customer Part-No. :

Customer-specific information
 Customer : OPEL

Engine : 2,3 DTR

Power KW: 74

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
 return temp. °C
 with thermometer : 40.00...48.00
 Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
 assembly : 1 688 901 000

Opening
 Pressure bar: 147.00...150.00

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
 x Wall thickness : 2.00
 x Length mm: 840

Start of delivery

Indicator setting
 Piston stroke mm: 1.0
 Outlet : A

Injection-pump setting values
 Test specifications in parentheses

Timing-device travel

Speed 1/min: 1000
 Charge press. hPa: 1000
 Setting value mm: 2.70...3.10

N03

AFB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1000
 Charge press hPa: 1000
 Setting value bar: 4.20...4.80

KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1200
 Charge press. hPa: 1000
 Del. quantity cm³/
 1000S.: 62.50...63.50

KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Dispersion cm³/
 1000S.: (3.0)

Full-load del. w/out charge press.:

Speed 1/min: 500
 Del. quantity cm³/
 1000S.: 40.50...41.50

KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12

Low-idle speed regulation

Speed 1/min: 290
 Del. quantity cm³/
 1000S.: 13.50...17.50

KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/
 1000S.: (3.0)

Full-load speed regulation

Speed 1/min: 2500
 Charge press hPa: 1000
 Del. quantity cm³/
 1000S.: 15.00...21.00

KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm³/: 37.00...39.00 L
mind 1000s.: 37.00

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1000
Charge press hPa: Z +
Inj.-qty. cm³/
difference 1000s.: 22.00...24.00

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
TD-travel dif.measurement
correttore anticipo iniezione (SV)
1.Speed 1/min: 1000
Charge press hPa: Z +
TD-travel
difference mm: 1.20...1.40
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 2100
Charge press hPa: 1000
TD travel mm: 8.30...9.10
mm: (8.00...9.40)

KSB/AFB
valve Volt: 12
Shutoff : -
electromagnet Volt: 12
3rd speed 1/min: 1000
Charge press hPa: 1000
TD travel mm: 2.70...3.10
mm: (2.20...3.60)

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
4th speed 1/min: 800
Charge press hPa: 1000
TD travel mm: 1.30...2.10
mm: (1.00...2.40)

KSB/AFB
valve Volt: 12

NO4

Shutoff
electromagnet Volt: 12
9th speed 1/min: 300A
Charge press. hPa: 1000
TD travel mm: 1.50...3.50
mm: (1.30...3.70)

KSB/AFB
valve Volt: -
Shutoff
electromagnet Volt: 12
10th speed 1/min: 800B
Charge press. hPa: 1000
TD travel mm: 3.60...6.00
mm: (3.00...6.60)

KSB/AFB
valve Volt: -
Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 2100
Charge press. hPa: 1000
Supply-pump
pressure bar: 6.90...7.50

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
2nd speed 1/min: 1000
Charge press. hPa: 1000
Supply-pump
pressure bar: 4.20...4.80

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
3rd speed 1/min: 800
Charge press. hPa: 1000
Supply-pump
pressure bar: 3.70...4.30

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
4th speed 1/min: 300
Charge press. hPa: 1000
Supply-pump
pressure bar: 4.20...4.80

KSB/AFB
valve Volt: -
Shutoff
electromagnet Volt: 12

Overlow quantity at overflow valve:

1st speed 1/min: 500
Charge press. hPa: -
KSB/AFB
valve Volt: 12

Shutoff
electromagnet Volt: 12
Overflow : 47.70...83.40
quantity cm³/10s: (26.70...98.40)
2nd speed 1/min: 2150
Charge press. hPa: 1000
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Overflow : 55.60...139.00
quantity cm³/10s: (40.60...153.00)

Delivery-quant. and breakaway char.:

1st speed 1/min: 800*
Charge-air pressure-setting
point hPa: 500
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 55.50...56.50
1000S.: (53.00...59.00)
2nd speed 1/min: 2700
Charge press. hPa: 1000
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)
5th speed 1/min: 2500
Charge press. hPa: 1000
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 15.00...21.00
1000S.: (14.00...22.00)
8th speed 1/min: 2300
Charge press. hPa: 1000
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 35.00...43.00
1000S.: (33.00...45.00)
9th speed 1/min: 2150
Charge press. hPa: 1000
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 49.80...52.20
1000S.: (48.70...53.30)
12th speed 1/min: 1200
Charge press. hPa: 1000

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 62.50...63.50
1000S.: (60.70...65.30)
18th speed 1/min: 500
Charge press. hPa: -
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 40.50...41.50
1000S.: (38.70...43.30)

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 290
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)
Shutoff
electromagnet volt: -
KSB/AFB
valve Volt: -

Idle delivery:

1st speed 1/min: 290
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 13.50...17.50
1000S.: (11.50...19.50)
Dispersion cm³/: 3.0
1000S.: (3.0)
2nd speed 1/min: 380
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)
3rd speed 1/min: 320
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 7.00...13.00
1000S.: (6.50...13.50)

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

1st speed 1/min: 1000
Charge press. hPa: Z +
Inj.-qty. cm³/: 22.00...24.00
difference 1000S.: (20.00...26.00)

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
5th speed 1/min: 1000
Charge press. hPa: Z #
Inj.-qty. cm³/: 2.00...3.00
difference 1000S.: (2.00...8.00)

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

TD-travel dif.measurement:
correttore anticipo iniezione (SV):
1st speed 1/min: 1000
Charge press. hPa: Z +
TD-travel : 1.20...1.40
difference mm: (1.20...1.40)

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
4th speed 1/min: 1000
Charge press. hPa: Z #
TD-travel : 0.50...1.10
difference mm: (0.50...1.10)

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Automatic starting fuel delivery:

1st speed 1/min: 250
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 53.00...63.00
1000S.: (50.00...66.00)

2nd speed 1/min: 400
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 40.00...50.00
1000S.: (40.00...50.00)

3rd speed 1/min: 100
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 57.00...59.00 V
1000S.: (50.00...66.00)

4th speed 1/min: 100

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 37.00...39.00 L
1000S.: (30.00...46.00)

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation
K mm: -
KF mm: 5.8...6.2
MS mm: 1.1...1.5
SVS max. mm: 4.6
Ya mm: 37.9...39.9
Yb mm: 39.2...44.8

Remarks:
Operate control lever after each
manifold-pressure compensator pressure
change.

* Correction at adjusting nut

A = KSB adjustment point
B = KSB curve point

Overflow restriction 0.55 mm - Part No.
..303

Z = Absolute delivery

Starting delivery check
V = Speed-control lever in full-load
position

Starting delivery check
L = Speed-control lever in idle
position

Ya = Distance between VE flange and
speed-control lever in idle
position

Yb = Distance between VE flange and
speed-control lever in rated speed
position

Measurement point = edge of control

Lever on distributor-head end



BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : SOF
Edition : 07.93
replaces : -
Calibrating oil : ISO-4113
Injection pump : VE4/10F2100R518
Type number : 0 460 404 077
Customer Part-No. :

Customer-specific information
Customer : IVECO-SOFIM

Engine : 8140.67.2200

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 022

Opening
Pressure bar: 130.00...133.00

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 450

Start of delivery
Prestroke mm: 0.2
(from BDC): +0.02(0.04)

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1000
Setting value mm: 0.90...1.10
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1000
Setting value bar: 4.70...5.30
Shutoff
electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1500
Del. quantity cm3/
1000S.: 42.50...43.50
Shutoff
electromagnet Volt: 12
Dispersion cm3/: 3.0
1000S.: (3.0)

Low-idle speed regulation

Speed 1/min: 375
Del. quantity cm3/
1000S.: 12.00...16.00
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 3.0
1000S.: (3.0)

Full-load speed regulation

Speed 1/min: 2300
Del. quantity cm3/
1000S.: 25.00...29.00
Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/: 65.00...105.00
mind 1000S.: 65.00
Shutoff
electromagnet Volt: 12

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1000
Charge press hPa: 12
Inj.-qty. cm3/
difference 1000S.: -15.0...-21.00#
Shutoff
electromagnet Volt: 12
TD-travel dif.measurement
correttore anticipo iniezione (SV)
1.Speed 1/min: 1000
TD-travel
difference mm: -0.4...-0.60#
Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 1800
TD travel mm: 6.10...6.70
mm: (5.70...7.10)
electromagnet Volt: 12
3rd speed 1/min: 1000
TD travel mm: 0.90...1.10
mm: (0.40...1.60)

Shutoff
electromagnet Volt: 12
5th speed 1/min: 2100
TD travel mm: 6.90...7.70
mm: (6.60...8.00)

Shutoff
electromagnet Volt: 12
6th speed 1/min: 1500
TD travel mm: 4.20...4.80
mm: (3.80...5.20)

Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 2100
Supply-pump pressure bar: 8.50...9.10
Shutoff

electromagnet Volt: 12
2nd speed 1/min: 1000
Supply-pump pressure bar: 4.70...5.30
Shutoff

electromagnet Volt: 12
3rd speed 1/min: 600
Supply-pump pressure bar: 3.20...3.80
Shutoff
electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 600
Shutoff
electromagnet Volt: 12
Overflow quantity cm³/10s: 41.70...83.40
(26.70...98.40)
2nd speed 1/min: 2100
Shutoff
electromagnet Volt: 12
Overflow quantity cm³/10s: 55.60...139.00
(40.60...153.00)

Delivery-quant. and breakaway char.:

2nd speed 1/min: 2600
Shutoff
electromagnet Volt: 12

Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)
5th speed 1/min: 2300
Shutoff

electromagnet Volt: 12
Del. quantity cm³/: 25.00...29.00
1000S.: (21.00...33.00)
9th speed 1/min: 2100
Shutoff

electromagnet Volt: 12
Del. quantity cm³/: 42.00...45.00
1000S.: (41.00...46.00)
12th speed 1/min: 1500
Shutoff

electromagnet Volt: 12
Del. quantity cm³/: 42.50...43.50
1000S.: (41.00...45.00)
15th speed 1/min: 1000
Shutoff

electromagnet Volt: 12
Del. quantity cm³/: 39.50...42.50
1000S.: (38.50...43.50)
20th speed 1/min: 600
Shutoff

electromagnet Volt: 12
Del. quantity cm³/: 34.50...38.50
1000S.: (33.50...39.50)

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 375
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)
Shutoff
electromagnet volt: -

Idle delivery:

1st speed 1/min: 375
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 12.00...16.00
1000S.: (9.00...19.00)

Dispersion cm³/: 3.0
1000S.: (3.0)
2nd speed 1/min: 465
Shutoff
electromagnet Volt: 12

Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

1st speed 1/min: 1000
Charge press. hPa: '
Inj.-qty. cm³/ : -16.0...-18.0
difference 1000S.: (-16.0...-18.0)

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1000
Charge press. hPa: #
Inj.-qty. cm³/: -15.0...-21.0
difference 1000s.: (-14.0...-22.0)

Shutoff
electromagnet Volt: 12
5th speed 1/min: 1000
Charge press. hPa: *
Inj.-qty. cm³/: 0.00...2.00
difference 1000s.: (0.00...2.00)

Shutoff
electromagnet Volt: 12

TD-travel dif.measurement:
correttore anticipo iniezione (SV):
1st speed 1/min: 1000
Charge press. hPa: #
TD-travel : -0.40...-0.60
difference mm: (-0.40...-0.60)

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1000
Charge press. hPa: *
TD-travel : -0.40...-1.40
difference mm: (-0.40...-1.40)

Shutoff
electromagnet Volt: 12

SP press.-dif.measurement:
pompa di mandata (FP):
1st speed 1/min: 1000
Charge press. hPa: '
Supply pump-
pressure : -0.10...-0.30
difference bar: (-0.10...-0.30)

Shutoff
electromagnet Volt: 12

Automatic starting fuel delivery:

1st speed 1/min: 300
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 55.00...85.00
1000s.: (55.00...85.00)

2nd speed 1/min: 500
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 25.00...45.00
1000s.: (25.00...45.00)

4th speed 1/min: 100
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 65.00...105.00
1000s.: (65.00...105.00)

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation
K mm: -
KF mm: 5.8...6.2
MS mm: 1.7...2.1
SVS max. mm: -
Ya mm: 37.9...39.9
Yb mm: 41.8...47.0

Remarks:

Overflow restriction 0.55 mm - Part No. ..303

Ya = Distance between VE flange and
speed-control lever in idle
position

Yb = Distance between VE flange and
speed-control lever in rated speed
position

Measurement point = edge of control
lever on distributor-head end

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : SOF
Edition : 07.93
replaces : -
Calibrating oil : ISO-4113
Injection pump : VE4/10F2100R557
Type number : 0 460 404 079
Customer Part-No. :

Customer-specific information
Customer : IVECO-SOFIM

Engine : 8140.67.2700

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 022

Opening
Pressure bar: 130.00...133.00

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 450

Start of delivery
Prestroke mm: 0.2
(from BDC): +0.02(0.04)

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1000
Setting value mm: 0.90...1.10
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1000
Setting value bar: 4.70...5.30
Shutoff
electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1500
Del. quantity cm3/
1000S.: 42.50...43.50
Shutoff
electromagnet Volt: 12
Dispersion cm3/: 3.0
1000S.: (3.0)

Low-idle speed regulation

Speed 1/min: 375
Del. quantity cm3/
1000S.: 12.00...16.00
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 3.0
1000S.: (3.0)

Full-load speed regulation

Speed 1/min: 2300
Del. quantity cm3/
1000S.: 25.00...29.00
Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/: 65.00...105.00
mind 1000S.: 65.00
Shutoff
electromagnet Volt: 12

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1000
Charge press hPa: 12
Inj.-qty. cm3/
difference 1000S.: -15.0...-21.00#
Shutoff
electromagnet Volt: 12
TD-travel dif.measurement
correttore anticipo iniezione (SV)
1.Speed 1/min: 1000
TD-travel
difference mm: -0.4...-0.60#
Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 1800
TD travel mm: 6.10...6.70
mm: (5.70...7.10)
electromagnet Volt: 12
3rd speed 1/min: 1000
TD travel mm: 0.90...1.10
mm: (0.40...1.60)

Shutoff
electromagnet Volt: 12
5th speed 1/min: 2100
TD travel mm: 6.90...7.70
mm: (6.60...8.00)

Shutoff
electromagnet Volt: 12
6th speed 1/min: 1500
TD travel mm: 4.20...4.80
mm: (3.80...5.20)

Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 2100
Supply-pump pressure bar: 8.50...9.10
Shutoff

electromagnet Volt: 12
2nd speed 1/min: 1000
Supply-pump pressure bar: 4.70...5.30
Shutoff

electromagnet Volt: 12
3rd speed 1/min: 600
Supply-pump pressure bar: 3.20...3.80
Shutoff
electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 600
Shutoff
electromagnet Volt: 12
Overflow quantity cm³/10s: 41.70...83.40
(26.70...98.40)
2nd speed 1/min: 2100
Shutoff

electromagnet Volt: 12
Overflow quantity cm³/10s: 55.60...139.00
(40.60...153.00)

Delivery-quant. and breakaway char.:

2nd speed 1/min: 2600
Shutoff
electromagnet Volt: 12

Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)
5th speed 1/min: 2300
Shutoff

electromagnet Volt: 12
Del. quantity cm³/: 25.00...29.00
1000S.: (21.00...33.00)
9th speed 1/min: 2100
Shutoff

electromagnet Volt: 12
Del. quantity cm³/: 42.00...45.00
1000S.: (41.00...46.00)
12th speed 1/min: 1500
Shutoff

electromagnet Volt: 12
Del. quantity cm³/: 42.50...43.50
1000S.: (41.00...45.00)
15th speed 1/min: 1000
Shutoff

electromagnet Volt: 12
Del. quantity cm³/: 39.50...42.50
1000S.: (38.50...43.50)
20th speed 1/min: 600
Shutoff

electromagnet Volt: 12
Del. quantity cm³/: 34.50...38.50
1000S.: (33.50...39.50)

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 375
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: -

Idle delivery:

1st speed 1/min: 375
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 12.00...16.00
1000S.: (9.00...19.00)

Dispersion cm³/: 3.0
1000S.: (3.0)

2nd speed 1/min: 465
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

1st speed 1/min: 1000
Charge press. hPa: '
Inj.-qty. cm³/ : -16.0...-18.0
difference 1000S.: (-16.0...-18.0)

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1000
Charge press. hPa: #
Inj.-qty. cm³/: -15.0...-21.0
difference 1000S.: (-14.0...-22.0)

Shutoff
electromagnet Volt: 12
5th speed 1/min: 1000
Charge press. hPa: *
Inj.-qty. cm³/: 0.00...2.00
difference 1000S.: (0.00...2.00)
Shutoff
electromagnet Volt: 12

TD-travel dif.measurement:
correttore anticipo iniezione (SV):
1st speed 1/min: 1000
Charge press. hPa: #
TD-travel : -0.40...-0.60
difference mm: (-0.40...-0.60)

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1000
Charge press. hPa: *
TD-travel : -0.40...-1.40
difference mm: (-0.40...-1.40)
Shutoff
electromagnet Volt: 12

SP press.-dif.measurement:
pompa di mandata (FP):
1st speed 1/min: 1000
Charge press. hPa: '
Supply pump-
pressure : -0.10...-0.30
difference bar: (-0.10...-0.30)
Shutoff
electromagnet Volt: 12

Automatic starting fuel delivery:

1st speed 1/min: 300
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 55.00...85.00
1000S.: (55.00...85.00)

2nd speed 1/min: 500
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 25.00...45.00
1000S.: (25.00...45.00)

4th speed 1/min: 100
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 65.00...105.00
1000S.: (65.00...105.00)

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation
K mm: -
KF mm: 5.6...6.0
MS mm: 1.7...1.9
SVS max. mm: -
Ya mm: 37.9...39.9
Yb mm: 41.8...47.0

Remarks:

:
:
:
Overflow restriction 0.55 mm - Part No. ..303

Ya = Distance between VE flange and
speed-control lever in idle
position

Yb = Distance between VE flange and
speed-control lever in rated speed
position

Measurement point = edge of control
lever on distributor-head end

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VWV
 Edition : 07.92
 replaces : -
 Calibrating oil : ISO-4113
 Injection pump : VE6/10F2150L470
 Type number : 0 460 406 073
 Customer Part-No. :

Customer-specific information
 Customer : VW

Engine : 075.2 (2.4L.)

TEST BENCH REQUIREMENTS

Overflow restricti: 1 469 456 303

Calibrating-oil
 return temp. °C
 with thermometer : 40.00...48.00
 Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
 assembly : 1 688 901 000

Opening
 Pressure bar: 147.00...150.00

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
 x Wall thickness : 2.00
 x Length mm: 840

Start of delivery
 Prestroke mm: -
 (from BDC): -

Injection-pump setting values
 Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250
 Charge press. hPa: 750
 Setting value mm: 2.20...2.60
 Shutoff
 electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1250
 Charge press hPa: 750
 Setting value bar: 5.20...5.80
 Shutoff
 electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1250
 Charge press. hPa: 750
 Del. quantity cm³/
 1000S.: 41.50...42.50

Shutoff
 electromagnet Volt: 12
 Dispersion cm³/: 2.5
 1000S.: (3.0)

Full-load del. w/out charge press.:

Speed 1/min: 600
 Del. quantity cm³/
 1000S.: 24.50...25.50

Shutoff
 electromagnet Volt: 12

Low-idle speed regulation

Speed 1/min: 375
 Del. quantity cm³/
 1000S.: 7.00...9.00

Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 2.0
 1000S.: (3.0)

Full-load speed regulation

Speed 1/min: 2250
 Charge press hPa: 750
 Del. quantity cm³/
 1000S.: 10.00...14.00

Shutoff
 electromagnet Volt: 12

Start:

Speed 1/min: 100
 Del. quantity cm³/: 35.00...65.00
 mind -1000S.: 35.00

Shutoff
 electromagnet Volt: 12

Load-dependent start of delivery:
 Inj.-qty.dif.measurement:

Speed 1/min: 1250
 Inj.-qty. cm³/
 difference 1000S.: -1.00...-5.00 +

Shutoff
electromagnet Volt: 12
TD-travel dif.measurement
correttore anticipo iniezione (SV)
1.Speed 1/min: 1250
TD-travel
difference mm: -0.6...-0.80+
Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1600
Charge press hPa: 750
TD travel mm: 4.00...4.80
mm: (3.70...5.10)

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1250
Charge press hPa: 750
TD travel mm: 2.20...2.60
mm: (1.70...3.10)

Shutoff
electromagnet Volt: 12
4th speed 1/min: 1000
Charge press hPa: 750
TD travel mm: 0.60...1.40
mm: (0.30...1.70)

Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 600
Charge press. hPa: 750
Supply-pump
pressure bar: 3.30...3.90

Shutoff
electromagnet Volt: 12
2nd speed 1/min: 1250
Charge press. hPa: 750
Supply-pump
pressure bar: 5.20...5.80

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 2000
Charge press. hPa: 750
Supply-pump
pressure bar: 7.50...8.10
Shutoff
electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 600
Charge press. hPa: -

Shutoff
electromagnet Volt: 12
Overflow : 41.70...83.40
quantity cm³/10s: (27.80...97.30)
2nd speed 1/min: 2000
Charge press. hPa: 750
Shutoff
electromagnet Volt: 12
Overflow : 55.60...138.90
quantity cm³/10s: (41.70...152.90)

Delivery-quant. and breakaway char.:

1st speed 1/min: 750*
Charge-air pressure-setting
point hPa: 350
Shutoff
electromagnet Volt: 12
Del. quantity cm³: 34.00...35.00
1000S.: (31.50...37.50)

2nd speed 1/min: 2400
Charge press. hPa: 750
Shutoff
electromagnet Volt: 12
Del. quantity cm³: 0.00...6.00
1000S.: (0.00...6.00)

5th speed 1/min: 2250
Charge press. hPa: 750
Shutoff
electromagnet Volt: 12
Del. quantity cm³: 10.00...14.00
1000S.: (8.00...16.00)

8th speed 1/min: 2175
Charge press. hPa: 750
Shutoff
electromagnet Volt: 12
Del. quantity cm³: 19.00...29.00
1000S.: (18.00...30.00)

9th speed 1/min: 2000
Charge press. hPa: 750
Shutoff
electromagnet Volt: 12
Del. quantity cm³: 35.60...35.60
1000S.: (33.40...37.80)

10th speed 1/min: 1750
Charge press. hPa: 750
Shutoff
electromagnet Volt: 12
Del. quantity cm³: 36.60...38.60
1000S.: (35.40...39.80)

12th speed 1/min: 1250
Charge press. hPa: 750
Shutoff
electromagnet Volt: 12
Del. quantity cm³: 41.50...42.50
1000S.: (39.80...44.20)

18th speed 1/min: 600
Charge press. hPa: -

Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 24.50...25.50
 1000S.: (22.00...28.00)
 20th speed 1/min: 600
 Charge press. hPa: 750
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 37.70...40.70
 1000S.: (36.20...42.20)

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 375
 Del. quantity cm³/: 0.00...3.00
 1000S.: (0.00...3.00)

Shutoff
 electromagnet volt: -

Idle delivery:

1st speed 1/min: 375
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 7.00...9.00
 1000S.: (4.00...12.00)

Dispersion cm³/: 2.0
 1000S.: (3.0)

2nd speed 1/min: 500
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 0.00...4.00
 1000S.: (0.00...4.00)

Load-dependent start of delivery:
 Inj.-qty.dif.measurement:

1st speed 1/min: 1250
 Inj.-qty. cm³/ : -0.5...-1.50'
 difference 1000S.: (-0.50...-1.50)
 Shutoff
 electromagnet Volt: 12
 3rd speed 1/min: 1250
 Inj.-qty. cm³/: -1.0...-5.00+
 difference 1000S.: (1.00...-7.00)
 Shutoff
 electromagnet Volt: 12
 5th speed 1/min: 1250
 Inj.-qty. cm³/: 0.00...3.00 *
 difference 1000S.: (0.00...3.00)
 Shutoff
 electromagnet Volt: 12

TD-travel dif.measurement:
 correttore anticipo iniezione (SV):
 1st speed 1/min: 1250
 TD-travel : -0.6...-0.80+
 difference mm: (-0.60...-0.80)

Shutoff
 electromagnet Volt: 12
 3rd speed 1/min: 1250
 TD-travel : -1.1...-1.50*
 difference mm: (-0.80...-1.80)
 Shutoff
 electromagnet Volt: 12

SP press.-dif.measurement:
 pompa di mandata (FP):
 1st speed 1/min: 1250
 Supply pump-
 pressure : -0.1...-0.30'
 difference bar: (-0.10...-0.30)
 Shutoff
 electromagnet Volt: 12
 3rd speed 1/min: 1250
 Supply pump-
 pressure : -0.5...-0.90*
 difference bar: (-0.30...-1.10)
 Shutoff
 electromagnet Volt: 12
 4th speed 1/min: 1250

Automatic starting fuel delivery:

1st speed 1/min: 320
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 35.00...75.00
 1000S.: (35.00...75.00)

2nd speed 1/min: 520
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 15.00...35.00
 1000S.: (15.00...35.00)

4th speed 1/min: 100
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 35.00...65.00
 1000S.: (35.00...65.00)

Shutoff electromagnet:

Cut-in
 min voltage : 10.0
 Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K	mm: 3.3...3.5
KF	mm: 6.5...6.7
MS	mm: 1.1...1.5
SVS max.	mm: -
Ya	mm: 31.5...33.5
Yb	mm: 51.0...63.3

Remarks:

⋮

Ya = Distance between VE flange and
speed-control lever in idle
position

Yb = Distance between VE flange and
speed-control lever in rated speed
position

Measurement point = edge of control
lever on distributor-head end

Operate control lever after each
manifold-pressure compensator pressure
change.

* Correction at adjusting nut

y y **FEHLENDEN TEXT ÜBERSETZEN** y y

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VWV
Edition : 07.93
replaces : -
Calibrating oil : ISO-4113

Injection pump : VE6/10F2150L398
Type number : 0 460 406 075
Customer Part-No. :

Customer-specific information
Customer : VW

Engine : 075.1 (2.4L)

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 000

Opening
Pressure bar: 147.00...150.00

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Start of delivery
Prestroke mm: -
(from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1500
Setting value mm: 4.40...4.80
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1500
Setting value bar: 6.00...6.60
Shutoff
electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1250
Del. quantity cm3/
1000S.: 30.00...31.00
Shutoff
electromagnet Volt: 12
Dispersion cm3/: 2.5
1000S.: (3.0)

Low-idle speed regulation

Speed 1/min: 375
Del. quantity cm3/
1000S.: 7.00...9.00
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 2.0
1000S.: (3.0)

Full-load speed regulation

Speed 1/min: 2325
Del. quantity cm3/
1000S.: 10.00...14.00
Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/: 35.00...65.00
mind 1000S.: 35.00
Shutoff
electromagnet Volt: 12

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1500
Inj.-qty. cm3/
difference 1000S.: -8.00...-12.00#
Shutoff
electromagnet Volt: 12
TD-travel dif.measurement
correttore anticipo iniezione (SV)
1.Speed 1/min: 1500
TD-travel
difference mm: -0.6...-0.80#
Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1700
TD travel mm: 5.10...5.90
mm: (4.80...6.20)

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1500
TD travel mm: 4.40...4.80
mm: (3.90...5.30)

Shutoff
electromagnet Volt: 12
4th speed 1/min: 1000
TD travel mm: 1.80...2.60
mm: (1.50...2.90)

Shutoff
electromagnet Volt: 12
5th speed 1/min: 2150
TD travel mm: 6.20...7.00
mm: (5.90...7.30)

Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 750
Supply-pump
pressure bar: 3.80...4.40
Shutoff

electromagnet Volt: 12
2nd speed 1/min: 1500
Supply-pump
pressure bar: 6.00...6.60
Shutoff

electromagnet Volt: 12
3rd speed 1/min: 2150
Supply-pump
pressure bar: 7.90...8.50
Shutoff

electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 750
Shutoff
electromagnet Volt: 12
Overflow quantity cm³/10s: 41.70...83.40
(27.80...97.30)

2nd speed 1/min: 2150
Shutoff
electromagnet Volt: 12
Overflow quantity cm³/10s: 55.60...138.90
(41.70...152.90)

Delivery-quant. and breakaway char.:

2nd speed 1/min: 2500
Shutoff
electromagnet Volt: 12

Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)
5th speed 1/min: 2325
Shutoff

electromagnet Volt: 12
Del. quantity cm³/: 10.00...14.00
1000S.: (8.00...16.00)

8th speed 1/min: 2275
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 14.50...24.50
1000S.: (13.50...25.50)

9th speed 1/min: 2150
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 21.00...23.00
1000S.: (19.80...24.20)

10th speed 1/min: 1850
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 22.70...25.30
1000S.: (21.00...27.00)

12th speed 1/min: 1250
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 30.00...31.00
1000S.: (28.20...32.70)

20th speed 1/min: 750
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 26.50...29.50
1000S.: (25.00...31.00)

Mech. shutoff:
Electr. shutoff:

1st speed 1/min: 375
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)
Shutoff
electromagnet volt: -

Idle delivery:
1st speed 1/min: 375
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 7.00...9.00
1000S.: (4.00...12.00)

Dispersion cm³/: 2.0
1000S.: (3.0)
2nd speed 1/min: 500
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

1st speed 1/min: 1500
 Charge press. hPa: '
 Inj.-qty. cm³/ : -6.50...-8.50
 difference 1000S.: (-6.50...-8.50)
 Shutoff
 electromagnet Volt: 12
 3rd speed 1/min: 1500
 Charge press. hPa: #
 Inj.-qty. cm³/: -8.0...-12.00
 difference 1000S.: (-6.0...-14.00)
 Shutoff
 electromagnet Volt: 12
 5th speed 1/min: 1500
 Charge press. hPa: *
 Inj.-qty. cm³/: 0.00...3.00
 difference 1000S.: (0.00...3.00)
 Shutoff
 electromagnet Volt: 12

TD-travel dif.measurement:
 correttore anticipo iniezione (SV):
 1st speed 1/min: 1500
 Charge press. hPa: #
 TD-travel : -0.60...-0.80
 difference mm: (-0.60...-0.80)
 Shutoff
 electromagnet Volt: 12
 3rd speed 1/min: 1500
 Charge press. hPa: *
 TD-travel : -1.10...-1.50
 difference mm: (-0.80...-1.80)
 Shutoff
 electromagnet Volt: 12

SP press.-dif.measurement:
 pompa di mandata (FP):
 1st speed 1/min: 1500
 Charge press. hPa: '
 Supply pump-
 pressure : -0.10...-0.30
 difference bar: (-0.20...-0.20)
 Shutoff
 electromagnet Volt: 12
 3rd speed 1/min: 1500
 Charge press. hPa: *
 Supply pump-
 pressure : -0.50...-0.90
 difference bar: (-0.30...-1.10)
 Shutoff
 electromagnet Volt: 12

Automatic starting fuel delivery:

1st speed 1/min: 300
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 35.00...75.00
 1000S.: (35.00...75.00)

2nd speed 1/min: 500
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 15.00...35.00
 1000S.: (15.00...35.00)

4th speed 1/min: 100
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 35.00...65.00
 1000S.: (35.00...65.00)

Shutoff electromagnet:

Cut-in
 min voltage : 10.0
 Rated voltage : 12.0

Mounting and assembly dimensions:

Designation
 K mm: 3.2...3.4
 KF mm: 6.3...6.7
 MS mm: 1.3...1.7
 Ya mm: 31.5...33.5
 Yb mm: 51.2...63.4

Remarks:

:
 :
 Overflow restriction 0.55 mm - Part No. ..303

Ya = Distance between VE flange and
 speed-control lever in idle
 position

Yb = Distance between VE flange and
 speed-control lever in rated speed
 position

Measurement point = edge of control
 lever on distributor-head end

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : FOR 2,5
Edition : 07.07.93
replaces : 16.02.91
Calibrating oil : ISO-4113

Injection pump : VE4/11F2000R415
Type number : 0 460 414 083
Customer Part-No. :

Customer-specific information
Customer : FORD (1)=NLK

Engine : 2.5l DI(2)= OHNE NLK

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 344

Calibrating-oil
return temp. °C
with thermometer : 44.00...46.00
Electronically : 44.00...46.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 114

Opening
Pressure bar: 207.00...210.00

Perforated-plate
diameter mm: 0.4

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 450

Start of delivery block
Piston stroke mm: 0.35
mm: 0.30...0.40

Outlet : B

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250
Setting value mm: 4.20...4.60

Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1250
Setting value bar: 6.90..7.50(1)
Shutoff
electromagnet Volt: 12

Full-load del. w/out charge press.:

Speed 1/min: 500
Del. quantity cm³/
1000S.: 25.80...26.20 F

Shutoff
electromagnet Volt: 12
Dispersion cm³/: 3.0
1000S.: (4.0)

Low-idle speed regulation

Speed 1/min: 425
Del. quantity cm³/
1000S.: 6.00...8.00

Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 3.0
1000S.: (4.0)

Full-load speed regulation

Speed 1/min: 2200
Del. quantity cm³/
1000S.: 23.20...25.20

Shutoff
electromagnet Volt: 12
Dispersion cm³/: 3.0
1000S.: (4.0)

Start:

Speed 1/min: 100
Del. quantity cm³/: 45.00...85.00
mind 1000S.: 45.00
Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 2000
Charge press hPa: (1)
TD travel mm: 7.40...8.20
mm: (7.10...8.60)
electromagnet Volt: 12
2nd speed 1/min: 1250
Charge press hPa: (1)

TD travel mm: 4.20...4.60
 mm: (3.90...4.90)
 Shutoff
 electromagnet Volt: 12
 3rd speed 1/min: 800
 Charge press hPa: (1)
 TD travel mm: 1.70...2.50
 mm: (1.40...2.80)
 Shutoff
 electromagnet Volt: 12
 4th speed 1/min: 2000
 Charge press hPa: (2)
 TD travel mm: 7.50...8.30
 mm: (7.20...8.60)
 Shutoff
 electromagnet Volt: 12
 5th speed 1/min: 1250
 Charge press. hPa: (2)
 TD travel mm: 4.20...4.60
 mm: (3.90...4.90)
 Shutoff
 electromagnet Volt: 12
 6th speed 1/min: 800
 Charge press. hPa: (2)
 TD travel mm: 2.00...2.80
 mm: (1.70...3.10)
 Shutoff
 electromagnet Volt: 12
 Supply-pump pressure characteristic:
 1st speed 1/min: 500
 Supply-pump
 pressure bar: (1) 5.2...5.8
 bar: (2) 4.4...5.0
 Shutoff
 electromagnet Volt: 12
 2nd speed 1/min: 1000
 Supply-pump
 pressure bar: (1) 6.4...7.0
 bar: (2) 5.7...6.3
 Shutoff
 electromagnet Volt: 12
 3rd speed 1/min: 1250
 Supply-pump
 pressure bar: (1) 6.9...7.5
 bar: (2) 6.2...6.8
 Shutoff
 electromagnet Volt: 12
 4th speed 1/min: 2000
 Supply-pump
 pressure bar: (1) 8.6...9.2
 bar: (2) 7.8...8.4
 Shutoff
 electromagnet Volt: 12
 Overflow quantity at overflow valve:
 1st speed 1/min: 500

Shutoff
 electromagnet Volt: 12
 Overflow : 97.30...141.70
 quantity cm³/10s: (82.30...156.70)
 2nd speed 1/min: 1950
 Shutoff
 electromagnet Volt: 12
 Overflow : 115.30...184.80
 quantity cm³/10s: (100.30...199.80)
 Delivery-quant. and breakaway char.:
 1st speed 1/min: 1950
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 36.00...38.40 D
 1000s.: (34.70...39.70) D
 2nd speed 1/min: 2400
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 0.00...5.00
 1000s.: -
 5th speed 1/min: 2200
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 23.20...25.20
 1000s.: (19.20...29.20)
 8th speed 1/min: 2100
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 30.50...36.50
 1000s.: (27.50...39.50)
 9th speed 1/min: 1950
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 36.00...38.40
 1000s.: (34.70...39.70)
 10th speed 1/min: 1700
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 36.50...38.90
 1000s.: (35.20...40.20)
 11th speed 1/min: 1000
 Del. quantity cm³/: 32.20...33.20 E
 1000s.: (30.20...35.20) E
 12th speed 1/min: 500
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 25.80...26.20 F
 1000s.: (23.00...29.00) F
 Mech. shutoff:
 Electr. shutoff:
 1st speed 1/min: 425
 Del. quantity cm³/: 0.00...3.00
 1000s.: (0.00...3.00)

Shutoff
electromagnet volt: -

Idle delivery:

1st speed 1/min: 425

Shutoff

electromagnet Volt: 12

Del. quantity cm³/: 6.00...8.00
1000S.: (3.00...11.00)

Dispersion cm³/: 3.0
1000S.: (4.0)

2nd speed 1/min: 500

Shutoff

electromagnet Volt: 12

Del. quantity cm³/: (1) 0.0...6.0
1000S.: (2) 2.0...10.0

Part-load del. at 3rd inj.-qty.

terza fermo della portata

stop (EGR set)

scarico) (ARF)

gaz d'échappement-ARF)

Spacing mm: 20.0

1st speed 1/min: 1250

Shutoff

electromagnet Volt: 12

Del. quantity cm³/: 18.00...19.00
1000S.: (16.00...21.00)

Automatic starting fuel delivery:

1st speed 1/min: 300

Shutoff

electromagnet volt: 12

Del. quantity cm³/: 40.00...70.00
1000S.: (40.00...70.00)

2nd speed 1/min: 420

Shutoff

electromagnet Volt: 12

Del. quantity cm³/: 21.00...31.00
1000S.: (21.00...31.00)

4th speed 1/min: 100

Shutoff

electromagnet Volt: 12

Del. quantity cm³/: 45.00...85.00
1000S.: (45.00...85.00)

Shutoff electromagnet:

Cut-in

min voltage : 10.0

Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

N23

K mm: 2.7...2.9
KF mm: K-OT
MS mm: 1.8
TLA-ē mm: 2.5
Ya mm: 42.8...45.8
Yb mm: 60.0...72.0

Remarks:

:
:

Pump/engine assignment:
Attach timing-device cover KDEP 1151.
Plunger lift in blocking position =
0.30...
0.40 mm referenced to outlet "B".

Ya = Distance between VE flange and
speed-control lever in idle
position

Yb = Distance between VE flange and
speed-control lever in rated speed
position

Measurement point = edge of control
lever on distributor-head end

F = Adjustment point for low full-load
delivery

E = Fuel-delivery adjustment point in
HBA range. (Correction by way of HBA
adjusting screw).

D = Adjustment point for high full-
load delivery

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MAN
Edition : 07.93
replaces : -
Calibrating oil : ISO-4113

Injection pump : VE6/11F1350R417-4
Type number : 0 460 416 074
Customer Part-No. :

Customer-specific information
Customer : MAN

Engine : D 0826 GF 04

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 109

Opening
Pressure bar: 207.00...210.00

Perforated-plate
diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Start of delivery
Prestroke mm: 0.61
(from BDC): ±0.02(0.04)

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1100
Setting value mm: 2.00...2.40
Shutoff
electromagnet Volt: 24

Supply-pump pressure

Speed 1/min: 1100
Setting value bar: 5.90...6.50
Shutoff
electromagnet Volt: 24

Full-load del. with charge press.:

Speed 1/min: 1000
Del. quantity cm³/
1000S.: 83.00...84.00

Shutoff
electromagnet Volt: 24
Dispersion cm³/
1000S.: (4.5)

Low-idle speed regulation

Speed 1/min: 300
Del. quantity cm³/
1000S.: 7.00...13.00

Shutoff
electromagnet Volt: 24
Del. quantity cm³/
1000S.: (6.5)

Full-load speed regulation

Speed 1/min: 1410
Del. quantity cm³/
1000S.: 57.00...63.00

Shutoff
electromagnet Volt: 24

Start:

Speed 1/min: 100
Del. quantity cm³/
mind 1000S.: 57.00

Shutoff
electromagnet Volt: 24

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1200
TD travel mm: 2.80...3.60
mm: (2.50...3.90)

Shutoff
electromagnet Volt: 24
3rd speed 1/min: 1100
TD travel mm: 2.00...2.40
mm: (1.50...2.90)

Shutoff
electromagnet Volt: 24
4th speed 1/min: 1000

TD travel mm: 0.80...1.60
mm: (0.50...1.90)

Shutoff
electromagnet Volt: 24
5th speed 1/min: 1350

TD travel mm: 3.70...4.50
mm: (3.70...4.50)

Shutoff
electromagnet Volt: 24

Supply-pump pressure characteristic:

1st speed 1/min: 600
Supply-pump pressure bar: 2.80...3.40

Shutoff
electromagnet Volt: 24

2nd speed 1/min: 1100

Supply-pump pressure bar: 5.90...6.50

Shutoff
electromagnet Volt: 24

3rd speed 1/min: 1350

Supply-pump pressure bar: 7.40...8.00

Shutoff
electromagnet Volt: 24

Overflow quantity at overflow valve:

1st speed 1/min: 600
Shutoff

electromagnet Volt: 24
Overflow : 41.70...83.40

quantity cm³/10s: (26.70...98.40)

2nd speed 1/min: 1350

Shutoff
electromagnet Volt: 24

Overflow : 55.60...139.00
quantity cm³/10s: (40.60...153.00)

Delivery-quant. and breakaway char.:

2nd speed 1/min: 1550

Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

3rd speed 1/min: 1500

Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 0.00...15.00
1000S.: (0.00...15.00)

4th speed 1/min: 1450

Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 15.00...45.00
1000S.: (15.00...45.00)

5th speed 1/min: 1410

Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 57.00...63.00
1000S.: (55.50...64.50)

9th speed 1/min: 1350

Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 77.50...80.50
1000S.: (76.00...82.00)

12th speed 1/min: 1100

Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 81.50...82.50
1000S.: (79.50...84.50)

15th speed 1/min: 850

Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 81.00...85.00
1000S.: (79.50...86.50)

20th speed 1/min: 600

Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 57.00...63.00
1000S.: (56.00...64.00)

Mech. shutoff:
Mech. Abst. ellung:

1st speed 1/min: 1350
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: 24

Electr. shutoff:

1st speed 1/min: 300
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: -

Idle delivery:

1st speed 1/min: 300
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 7.00...13.00
1000S.: (5.00...15.00)

Dispersion cm³/: 6.0
1000S.: (6.5)

2nd speed 1/min: 450

Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Automatic starting fuel delivery:

1st speed 1/min: 300

Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 65.00...125.00
1000S.: (65.00...125.00)

2nd speed 1/min: 480
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 40.00...70.00
1000S.: (40.00...70.00)

3rd speed 1/min: 100
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 64.00...66.00
1000S.: (57.00...73.00)

Shutoff electromagnet:

Cut-in
min voltage : 20.0
Rated voltage : 24.0

Mounting and assembly dimensions:

Designation

K	mm: -
KF	mm: 5.3...5.5
MS	mm: -
SVS max.	mm: 0.6
Ya	mm: 37.4...40.4
Yb	mm: 40.2...45.8

Remarks:

: MAN 51.1110 3-7215

Permissible port/port scatter with
stop test, mechanical = max. 5.0
ccm/1000 S.

Permissible port/port scatter with
stop test, electrical = max. 5.0
ccm/1000 S.

Ya = Distance between VE flange and
speed-control lever in idle
position

Yb = Distance between VE flange and
speed-control lever in rated speed
position

Measurement point = edge of control
lever on distributor-head end

Overflow restriction 0.55 mm - Part No.
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